

AGENCY FIRE PREVENTION GUIDE



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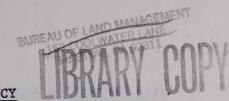


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ZERO CODE

CONTENTS

01 - Policy

04 - Responsibility

01 - <u>POLICY</u>. If all employees are to meet their fire prevention responsibilities, they must have basic knowledge of the fire prevention program.

Regional, Forest and District fire prevention specialists must provide the leadership, direction and training to provide all employees with a basic understanding of the Fire Prevention Program.

04 - RESPONSIBILITY. The fire prevention job cannot be accomplished by fire prevention specialists alone. The assistance of all employees is required.

Employees with duties involving public contact should receive priority in the fire prevention training.

All employees working in the field should be able to recognize the more serious fire prevention problems and know what corrective action is required.

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CHAPTER 10 FIRE PREVENTION ANALYSIS

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- 10 Fire Prevention Analysis
- 11 Analysis of Fires
- 12 Fire Occurrence Maps
- 13 Fire Risk Identification
- 14 Use Patterns
- 15 Weather Factors
- 16 Damage Potential
- 17 Evaluation Techniques

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- 10 FIRE PREVENTION ANALYSIS. In fire prevention analysis the basic factors to consider are: (1) what is causing or could cause fires;
- (2) where fires occur: (3) when fires occur; (4) why fires start;
- (5) how fires start; and (6) who starts fires.

Maps and records maintained in the District fire atlas should furnish most of the facts needed.

Fire prevention plans are based on the analysis information outlined in this chapter.

- 11 ANALYSIS OF FIRES. Analysis of past fires gives valuable information for identifying which causes need prevention and how and when to do it. To do this, fire prevention planners can:
 - 1. Compare cumulative records of fires by statistical cause for three and five year periods.
 - 2. Check man-caused fires to determine their cause and class and the source of persons responsible.
 - 3. Chart fire occurrence to show number of man-caused fires by month, day, time, location, prevention unit, etc.; trend of man-caused fires; and acreage burned by statistical causes.
 - 4. Determine sizes, causes and locations of fires over a three and five year period to give a picture of the District's fire prevention problems.
- 12 FIRE OCCURRENCE MAPS. Fire Occurrence Maps show location and statistical causes of fires. These maps should be prepared by five year periods to allow five or ten year tabulations of fire statistics. These maps are retained in the fire atlas for study. Use District 1/2 inch planimetric maps.

You should obtain a template or have a rubber stamp made for uniformity in placing symbols on maps. A drafting template called Rapid Design Plotting Symbols #59 is suggested.

The legend for the Fire Occurrence Map follows:

1. <u>Color - Year of Fire Occurrence</u>. Repeat for subsequent five year periods.

1975 - Blue

1976 - Purple

1977 - Brown

1978 - Yellow

1979 - Red

2. Size Class of Fires. Plot at point of origin with ink.

Class A - 1/16 inch dot

Class B - 1/8 inch dot

Class C - 1/8 inch cross

Class D - triangle

Class E - square

Class F - hexagon

Class G - diamond

3. Statistical Cause Class. Enter 1/8 inch letter beside symbol.

Lightning - L

Equipment Use - E

Smoking - S

Campfire - C

Debris Burning - D

Railroad - R

Children - K

Incendiary - I

Miscellaneous - M

- 4. Where large numbers of fires occur on a small area making it difficult to plot symbols and letters without crowding, use one of the methods below:
 - a. Prepare a large scale sketch on the margin of the map with an arrow pointing to the area it represents.
 - b. Place the symbols at point of origin, then place the letter denoting cause in a clear space. Connect with arrow.
- 13 IDENTIFYING FIRE PREVENTION RISK. The objective of fire prevention is to eliminate preventable fires. This includes all man-caused fires.

Records show many man-caused fires are caused by forest residents and local people who work in the forest, as well as by visitors.

Risks are those things which cause fires to start. Once the risk is identified, a method can be developed to control or minimize that risk.

13.1 - <u>Heat Source</u>. Heat may be transferred by either convection, conduction or radiation. To have ignition, heat must be applied to a combustible material until its ignition point is reached.

Common sources of heat are as follows:

1. <u>Electrical</u>. A short circuit arc may be caused from water, mechanical damage, defective or warm insulation. Look for broken

insulators or conductors contacting a tree or shrub. An arc can result from loose connections, broken conductors and improper connection. Be aware of improper connection of materials (aluminum wire to unapproved connectors).

2. Exhaust. Check for hot carbon sparks, particles or flame formed in the manifold, header pipe, muffler or tail pipe of internal combustion engines. These are usually controlled by spark arrestors attached to the exhaust system.

3. Smoking Material.

- 4. Open Flame. Includes heat from plumbers furnace, blow torch, bunsen burner, soldering and heating tools, candles, outdoor decorative torches. Also includes campfires, rubbish fires, trash burners, fires to smoke out bees, pests, game or snakes, burning for hazard reduction, rights-of-way, range improvement, land clearing and agricultural burning.
- 5. <u>Friction</u>. Includes heat from objects such as brakeshoes, spinning tires, bearings, brushing, foreign matter or objects in machinery, cable blocks and high speed cable contacting solid objects.
- 6. <u>Explosives</u>. Heat generated from explosives includes bombs, ammunition, blasting agents, military and amateur rocketry, flares and fireworks, including pyrotechnic and signaling devices.
- 7. <u>Incendiary Devices</u>. <u>Includes devices set to cause fire</u>.
- 8. <u>Natural Sources</u>. Includes heat from the sun magnified by glass, spontaneous combustion, lightning and static discharge.
- 13.2 Risk Maps. District Risk Maps are based on Occurrence Map and cover a five year period. They outline problem areas by statistical causes and priority for prevention by showing the protection area divided into zones of various types and degrees of risk. Areas outside the coordinated boundary can be included if activities outside could cause fires threatening wildlands. Boundaries of risk zones are marked with heavy black lines and include the residences of individuals or groups responsible for fires. When two or more causes are combined in a risk zone, explanatory notes are added on the map.

Types of risks are shown as follows:

Equipment - Brown Land Occupancy - Purple Forest Utilization - Orange Incendiary - Red Recreation - Blue Other - Green Smoking - Yellow Lightning - Black

Zones having 10 or more fires per 10,000 acres annually are classed as high risk or priority I; zones with four to nine fires, medium risk or priority II; and zones with one to three fires, low risk or priority III. Areas having fewer than one fire per 10,000 acres annually would not be rated as a risk.

13.5 - <u>Hazard Maps</u>. The identification of hazard areas is important. Examples are: hazardous areas adjacent to railroads, highways, campground, or near sawmills and towns, or dumps.

To minimize hazards, it is necessary to either eliminate or reduce the hazard by fireproofing or burning, by use of media, posters and warning signs, group contacts, individual contacts, restrictions and by use of closures or law enforcement.

Standard map legend for various types of hazards:

Slash areas, windfalls and blowdowns - Red
Camping areas - Blue
Debris areas - Purple
Roadside strips and RR/RW - Brown
Disease- and insect-killed timber - Yellow
Sawdust piles - Green X
Dumps - Gray X

Powerlines - Black dash line

- 13.6 Study of New and Potential Risks and Hazards. Prevention risks and hazards are not static. It is important to update prevention needs annually.
- 14 <u>USE PATTERNS.</u> A knowledge of use patterns is necessary for developing fire prevention plans.
 - 1. Prevention should be concentrated in areas of high fire occurrence and in areas of heavy public commercial or industrial uses.
 - 2. Prevention efforts should be planned to coincide with peak use periods and critical fire conditions.
 - 3. The type of fire occurrence is related to the type of use in an area. For example, in a camping area, expect escaped campfires, smoking, exploding stoves and lanterns and children with matches.
- 15 <u>WEATHER FACTORS</u>. Weather factors directly affect how easily a fire will start and how fast it will spread. As weather conditions change, the prevention program must change to compensate for weather effects on fuels.
- 15.1 <u>Season Severity</u>. As the fire season progresses, the fuels continue to dry and become potentially dangerous. There are also severe

conditions that occur each year such as the Santa Ana winds in Southern California. Specialists can determine when these severe conditions are most likely to occur and can plan accordingly. To be effective, fire prevention activity must take place well in advance of severe burning conditions.

15.2 - <u>Ignition Component</u>. The ignition component represents the ease with which fine fuels ignite normally dead fuels. The temperature of the fuel must be raised to the kindling point, about 716°F. (380°C).

The percent of green fuel moisture directly affects the energy required to start a fire.

The moisture content of the dead fuel depends on the humidity of the air in contact with the fuel particle. The higher the temperature of the fuel, the more likely it is to burn, since less energy is needed to raise the temperature to its ignition point.

- 15.3 <u>Time of Year.</u> During the summer months, the fuels dry, and visitor use increases, calling for a well-planned, aggressive prevention program. Also during the summer, industrial operations, such as logging, are often going on. As weather continues to dry vegetation, it is easier for equipment to start fires.
- 15.4 Probability Increases as the Fire Season Progresses. A general rule to keep in mind is that probability of a fire increases as the fire season progresses. Therefore, the prevention effort should be geared to cope with dryer fuels and increased use of wildlands as fire season goes on.
- 16 DAMAGE POTENTIAL. Prevention efforts should be concentrated on those areas where potential for damage and high suppression costs are the greatest. Damage potential classification then becomes a tool to use in determining prevention priorities. Six variable determine damage potentials:
 - 1. <u>Land Values.</u> Land values depend on the investment, either structural (buildings, etc.) or resource (plantations, etc.), that exists on the land. Other factors include aesthetics, planned future use, watershed values.

Land Use Plans, Line Officers, Resource Specialists and Realty Specialists are all good sources of information to use in determining land values when calculating damage potential.

2. <u>Terrain Features</u>. Geographic features that influence fire behavior include slope and aspect. Usually, grouping slopes into about four categories and considering only the broad aspect of the major drainages is sufficient.

- 3. <u>Fuel Loading</u>. Fuel loading refers to the amount, or volume, of fuel present. In its simplest form, you might consider only light (grass), medium (brush), and heavy (timber/slash). Data gathered during fuel inventories can be used in determining fuel loading.
- 4. <u>Fire Weather Data.</u> Data obtained from fire weather stations over a period of time can be grouped into categories based on the average number of days an area has "very high" or "extreme" fire danger.
- 5. Rate-of-Spread Resistance-to-Control. These are two methods of evaluating fuel types. They are influenced by the kind, quantity, size arrangement and moisture condition of fuels. Slope and weather are also factors. Resistance to control is the difficulty of constructing and holding a fire line.
- 6. Frequency of Occurrence. An increase in fire frequency increases the probability of a fire occurring during extreme burning conditions. Most large fire losses occur during extreme burning conditions.

17 - EVALUATION TECHNIQUES.

- 1. Cumulative records of fires by statistical cause for three or five year periods are compiled annually from Individual Fire Reports.
- 2. Statistical fire causes should be analyzed to determine the reason for cause, class and the resident location of persons responsible.
- 3. Fire occurrence data can be analyzed to show time of day, day of week, month of year, numbers of fires and where fires are occurring.
- 4. Size class of fires over five or ten year period give a picture of fire suppression problems.
- 5. Use of existing computer or research programs should be considered in the analysis process. These programs include:
 - a. AFFIRMS. This program is a Forest Fire Information Retrieval and Management System which is a computer program designed to permit entry of fire weather observations from field stations simultaneously over a large network. Fire weather data may be entered from any of a number of data terminals, then that data and the associated fire indices are displayed at any terminal in the network.
 - b. <u>Firebase</u>. Firebase is a computerized information program which provides information from wildland fire literature in a

usable form in the shortest possible time. Thousands of items of wildland fire information from publications around the world are retrievable through remote terminals by commercial or govenment computer facilities.

- c. <u>FOCUS</u>. FOCUS is a computer simulation tool designed to evaluate alternative fire planning proposals. Simulation through the use of high-speed computers develops a model of actual conditions to which alternative plans can be introduced and behavior changes projected.
- d. <u>Cross Tabs</u>. Individual Fire Report information is computerized and available through the Regional Fire Management Staff.

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CHAPTER 20 FIRE PREVENTION PLANNING

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- 20 Fire Prevention Planning
- 22 What is a Fire Prevention Plan?
- 23 Components of a Fire Prevention Plan
- 24 Fire Prevention Problem Solving
- 25 Fire Prevention Considerations in Land Management Planning

20 - FIRE PREVENTION PLANNING. A well-thought-out, comprehensive prevention plan will produce consistently good results towards meeting Regional, Forest, District and Unit objectives.

This chapter is designed to present the basic mechanics of fire prevention plan preparation.

22 - WHAT IS A FIRE PREVENTION PLAN? This written plan is based on key considerations which describe the action needed to effectively deal with identified risks and hazards within the unit. It identifies fire prevention problem areas and assists in setting priorities to deal with them.

23 - COMPONENTS OF A FIRE PREVENTION PLAN.

23.1 - Unit Description.

- 1. Physical Features. This includes topography, vegetation, road access, powerlines, structures and recreation areas.
- 2. <u>Population</u>. This includes information on communities within its boundaries, urban areas nearby and planned housing developments nearby. Other information might include the average yearly public use from nearby communities or areas miles away and the culture of the using public.

Note: Other information might include the type of wildland use and how well-informed the user is.

SAMPLE

FIRE PREVENTION PLAN

_____Forest

Table of Contents

- 1. Prevention Objectives.
- 2. Summary of Prevention Problems and Action.
- 3. Prevention Contact Plan.
- 4. Public Education.
- 5. Closures and Restrictions.
- 6. Industrial Operation.
- 7. Reduction of Physical Hazards.
- 8. Sign Posting Plan.
- 9. Prevention Training.
- 10. Basis for Fire Prevention Plan:
 - a. Fire Occurrence Map
 - b. Cumulative Fire Statistics
 - c. Fire Risk Map
 - d. Industrial Operations Map
 - e. Fire Hazard Map
 - f. Prevention Sign Map

NOTE: The maps in this sample plan ordinarily are part of the Fire Atlas.

- 23.2 <u>Prevention Contact Plan.</u> Fire Prevention Specialist is required to be aware of his contact opportunities, select the best ones, and followup. Secondary opportunities should not be overlooked, but the primary sources should get the best possible treatment. Remember to contact:
 - 1. <u>Transient Users.</u> An on the ground, person-to-person contact is the best proven method. The District Receptionist should know the fire prevention objectives and how to relate them. The same applies to the suppression foremen at outlying stations. Local businesses frequented by users can be a big help.
 - 2. <u>Formal Groups, Organizations, Associations.</u> Is there a local homeowners association? Who are the year-long residents? Who in the local community are willing to assist with a fire prevention activity?
 - 3. Media. The specialist can draft a newspaper release and forward to the Supervisor. It should be about items of interest that could be carried on the local radio or television station. Specialists can also become acquainted with local media managers and editors.
- 23.3 <u>Risk Inspection Plan.</u> This is an inventory of all potential fire-causing, man-made improvements over which the administering agency has some degree of control. Since many are administered by other personnel on a District, coordinate with them. Whenever possible, establish inspection priorities as a part of the Plan.
 - 1. <u>Industrial Operations</u>. Mining operations, logging operations, road construction, timber sales (government and private lands), housing developments, construction projects, railroad rights-of-way, community service districts and small cities and towns inside protection area.

Questions here include: Is the use recurrent or nonrecurrent? Who has responsibility for the project? Is there a fire prevention plan for the project?

- 2. Residential Improvements. What are the ages of the buildings and the types of contruction? How hazardous is the area? What type of access is there? Is there a local homeowners association? What is fire occurrence history?
- 3. Recreational Improvements. What is location, access, vegetative type, topography, season of use, types of use, natural barriers to wildfire spread and location and amount of available water? Design and construction of the facility?
- 4. <u>Powerlines.</u> Check the easement of Federal Power Commission license issued. Recon the line and establish compliance check

priorities. Local power company officials can furnish technical information. Learn the state and local laws and ordinances regarding powerlines. Find out what the powerlines company policies are regarding maintenance and fire safety. It is the responsibility of the powerline company to inspect their lines and abide by Federal and state laws.

- 5. Transient Users. "The Five W" principle can be put to work here to good advantage.
 - (1) Who are they?
 - (2) What are they doing?
 - (3) When are they doing it?
 - (4) Where are they doing it?
 - (5) Why are they doing it?

To prepare a plan, make a map, number the type of risk by location, add a written record listing the map number, type of operation, name of the person or company responsible for the operation, ownership, who is responsible for the inspection, when the inspection should be made and what codes are applicable (uniform building code, electric code, county code, etc.)

23.4 - <u>Hazard Reduction Plan.</u> Look at the hazards on a unit. List the hazard and formulate a plan to minimize or eliminate it. Make sure the action complements the adjacent District and other agency's fire prevention programs. A hazard reduction program often takes several years to complete and requires an adequate amount of planning and budgeting and scheduling. Priorities must be established.

Areas to consider in this section are: high hazard timber slash areas, areas of heavy fuels other than slash, recreational improvements, roadside, railroad rights-of-way, high hazard powerline areas and structures and communities in or near heavy fuels.

A tabulation should show (1) the cumulative map record number for each hazard, (2) kind, (3) location, (4) extent (acres or miles), (5) responsible parties, (6) plan and date of disposal, (7) field check on work, (8) status at end of first year, (9) intensive protection plans, (10) date of exemption and (11) release.

This will require field inspections, compliance checks and contacts.

23.5 - Sign and Poster Plan.

1. <u>Location</u>. Post larger signs on roadsides, considering the vehicle speed for the road. Post small signs at places like drinking fountains, turnouts, etc. so as to be unseen from the road. Limit the number of signs and posters. Do not place signs on trees.

- 2. <u>Message Content</u>. Fit the message to the fire problem area. Use specific action posters to the highest cause of fires wherever possible.
- 3. <u>Standards</u>. Follow the agency standards for fire prevention signs and posters. Refer to the agency sign handbook. Agencies should coordinate sign standards wherever possible to facilitate better public understanding.

For quick referral and continuity of your education program, you should draw up a sign posting plan and map. The plan should contain the map number, location of sign or poster, type of sign or poster, poster number and date posted. The prevention sign map should be drawn up showing sign and poster locations by number and unit boundary.

23.6 - Special Hazard. A special hazard could be an abandoned mining town, an isolated heavy use beach below heavy fuels, an archeological site that draws large numbers of people, a priority freeway construction project, a planned military maneuver in July or a cross-country motorcycle race.

Events such as military maneuvers and motorcycle races may require a Special Use Permit. Be alert for unusual events, ask the District personnel issuing such permits to include you in their preparation. The basic fire prevention practices should solve most problems. There are occasions when other experts and technicians must be consulted.

- 24 FIRE PREVENTION PROBLEM SOLVING. When the necessary information has been gathered and categorized, fire prevention priorities can be made and a plan developed to fit the unit's needs. This action plan requires a problem solving approach.
 - 1. <u>Define the Problem</u>. The great big problem is really several small ones that we have the resources to handle. Perhaps the solution must be stretched over a period of time, but the point is that we achieve what is desired.
 - 2. Analyze the Cause. Since the problem is man-caused, where is the human failure? Is it because they don't know what to do or how to do it? Is it because they don't care.

3. Design a Solution.

- a. Education for a person who doesn't know what to do.
 - b. Engineering for a person who is hampered by inadequate tools or facilities.
 - c. Enforcement for a person who chooses to do things "his way."

List every point you can think of for the three "E's" that logically fit the human failure problem. If possible, draw ideas from other people within a unit.

The final step is to determine a solution to minimize or possibly eliminate the problem.

- 4. Evaluate the Results. Evaluate the effectiveness of the action plan. Was the original problem minimized or eliminated as outlined in the plan?
- 25 FIRE PREVENTION CONSIDERATIONS IN LAND MANAGEMENT PLANNING. Planning is the key to reducing fire prevention problems.

While Forest, District and Unit fire prevention plans are necessary, little success can be expected if fire prevention needs are not recognized in the large number of other plans that are constantly being prepared and implemented.

- 1. <u>Land Use Plans</u>. Fire prevention specialists should involve themselves in the land use planning process. "Fire Management Considerations for Land Use Planning," December 1974, provides the basic guidelines to be used.
- 2. Environmental Analysis and Impact Statements. Fire prevention specialists should assure themselves that EAR's and EIS's recognize the fire risks and hazards that may be generated by a project.
- 3. <u>Project Plans, Contracts, Etc.</u> Prevention specialists need to keep themselves informed of planned work on their units and become involved in the planning or contract preparation phase of the job.
- 4. <u>Private Land.</u> Development of private lands within and adjacent to National Forest and BLM Districts have created serious fire prevention problems and usually this means line officer involvement with local government.

Fire prevention specialists should become knowledgeable of local land use planning procedures and control methods. Personal contacts with local planning commissions and staff employees is productive in gaining support of fire prevention needs. Appearances before boards and commissions in public session are often required.

Planning commission agendas often provide a good warning. Contacts with real estate people and local citizens should not be overlooked. County general plans and special elements of the general plan are good sources of information concerning local land use planning.

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CHAPTER 30 FIRE PREVENTION TRAINING

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- 30 Fire Prevention Training
- 31 Training Standards
- 32 Training Course Identification

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- 30 FIRE PREVENTION TRAINING. Fire Prevention Training programs and standards are essential in developing effective performance in meeting fire prevention objectives.
- 31 TRAINING STANDARDS. Fire Prevention is the responsibility of adequately trained people who know what to do and how to do it. Annually, each Forest and District (1) will analyze capabilities and training needs of personnel assigned to prevention work, and (2) will provide the training required.

32 - TRAINING COURSE IDENTIFICATION.

- 1. P-140 Fire Prevention. Basic training for all employees having fire prevention responsibilities (32 hours).
- 2. P-240 Intermediate Fire Prevention. Provides additional training to full-time employees with specific leadership responsibilities in fire prevention as technicians and officers (32 hours).
- 3. <u>P-410 Advanced Fire Prevention</u>. Provides advanced training for employees having program leadership responsibilities as fire prevention officer or coordinator (32 hours).

4. Reference Material.

- a. Fire Training and Qualifications Handbook.
- b. R-5 Fire Prevention Training Guide, Volumes 1 and 2.

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CHAPTER 40 FIRE PREVENTION EDUCATION

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- 41 Person to Person Contacts
- 42 Group Contacts
- 43 Media Contacts
- 44 Exhibits and Displays
- 45 Cooperative Forest Fire Prevention
- 46 Fire Prevention Signing
- 47 Fire Prevention Literature
- 48 Show-Me Trips
- 49 Fire Prevention Educational Resources

- 41 PERSON-TO-PERSON CONTACTS. Personal contact by a uniformed fire prevention specialist with the public is a very important part of the fire prevention program. Each contact must be planned carefully to convince the person to use fire safely.
- 41.1 Examples of Individual Contacts. Some individual contacts are specific. A fire prevention specialist may contact every person in a high hazard area with a specific message. Other contacts include giving general fire prevention information to visitors regardless of the intent of the original contact.

41.2 - To Make Effective Individual Fire Prevention Contacts.

- 1. Relate each fire message to the enjoyment, protection, and/or resource uses of the forest. Concentrate on the "how" of fire prevention. Relate the act of causing a fire to the loss of resources, life, and property.
- 2. Most people do not want to start fires. Use an approach which gives the visitor or forest user credit for helping prevent fires.
- 3. Vary the approach or conversation to meet different situations.
- 4. Have a sincere interest in people, be friendly and enthusiastic.
- 42 GROUP CONTACTS. The best group fire prevention contacts are obtained when the program meets the group's interest.
 - 1. Example: A fire prevention specialist speaks to the Rotary Club.

He asks the group to support the fire prevention program by helping him to remind the community about the safe uses of fire.

2. Another example: A timber sale officer or fire prevention specialist talks to loggers by arranging for a meeting with the company's woodsworkers.

He talks to these men about how to properly service power saw spark arresters, explains the smoking policy, asks the men to check their equipment to be sure tools, extinguishers and mufflers are serviceable. He reminds the men that their jobs are dependent on forest products which, if destroyed by fire, could put them out of a job.

3. Inspections of summer homes and other special use permit areas often allow opportunities for individual or group contacts.

42.1 - <u>Developing and Presenting Talks</u>. Properly developed talks, effectively presented, can result in increased public understanding and support and, therefore, need to be an integral part of Forest and District fire prevention programs.

42.11 - General Guidelines.

1. Preparation.

- a. Find an interesting starting point which will draw the interest of the audience.
- b. Figure out a good conclusion.
- c. Fill in the body of your talk covering the points you wish to cover, keeping in mind the interests and concerns of your audience.
- 2. Prepare yourself psychologically, much of the success of your talk will depend on your frame of mind.

The nature and background of the audience needs to be considered when preparing a talk.

3. Practice. A run through of your talk is needed to work out sequence, timing, and continuity.

Slides, movies or other visuals need to be run through for timing, sequence, and appropriateness.

4. Projection Equipment.

- a. The projector should be checked out before each use. Make sure that you have a spare bulb, a three-to-two prong adapter, at least one 15 foot or longer, extension cord, and a remote control extension. The lens should be clean, so have the static brush handy. Have a stand for the projector, if needed. If you use a cartridge projector, have each slide correctly placed and checked before arriving for the performance.
- b. Screen size and the focal length required for the lens must be considered. The screen should be filled by the picture if possible. If you use both horizontal and vertical slides, you should have a square screen. If the screen is rectangular, either the vertical or horizontal slides will be too large; however, the new zoom lenses on some projectors can remedy this if someone is near the machine to help change the focus mechanism.

- c. Routine details should not be overlooked. The room should be checked to see if black-out curtains or window shades are required and if projector and screen will be provided. Items most overlooked are extension cords and three-prong adapters for wall plug connections.
- d. Make seating arrangements to provide the best viewing location for the audience. Leave a corridor down the center of the group if the projector is not raised above head level.
- e. Determine position and focus of the projector and desired sound level before the class begins.
- f. Check the electrical outlet for current when the room lights are turned off.
- g. Warm up the sound element before you are ready to show the film.
- 42.12 Slide Talks. An effective slide presentation cannot be presented without proper preparation. Visuals require more practice and finesse in delivery than does the average speech.

Each slide used should be selected on its ability to make a point, attract attention, or imply a conclusion. Each slide should be the best available in makeup, composition, and exposure.

- 42.13 Movie Talks. Motion pictures present material in a form which less able readers can comprehend. They provide more complete presentation of ideas and procedures than most lectures and discussions. They insure full coverage of a specific teaching topic in the shortest time possible.
- 42.2 Other Audio-Visual Aids and Equipment. Visual aids including charts, graphs, pictures, models and sketches have unlimited possibilities. Their use will be limited only by the resourcefulness of the personnel who use them.
- 42.22 Posters. Posters are pictorial designs which tell a capsule story. They can be abstract presentations of an idea, action, or scene. Posters require a dynamic, impelling quality to truly serve their purpose. The specific characteristics which achieve this goal involve: dramatic simplicity (to achieve attention); self-contained message (to be self-explanatory); attractiveness (to be appealing and interesting); and design and color (to provide force and contrast). Their purpose, in essence, is to create strong and lasting impressions.
 - 1. Posters may express several subpoints, but only one major idea.

- 2. A poster quickly catches the viewer's attention, tells its story dramatically, and may create an opinion which could lead to future viewer activity or action.
- 3. Posters are composed of three parts which are: lead line; illustrations; and layout or pattern.
 - a. The lead line is the statement which first draws viewer attention. It is usually in large letters and located near the top. The lead line is ordinarily short, attempts to capture the viewer's interest and causes him to continue reading the rest of the message.
 - b. Illustrations are used to visualize the major idea and subpoints.
 - c. To fit into an orderly pattern, the lead line, illustration and labels should be arranged according to a layout. This plan shows where the various parts are to be placed.
 - (1) Two types of layout may be used. The symmetrical layout is evenly balanced. That is, the right and left sides are laid out the same.
 - (2) The diagonal layout creates a free, interesting, and dynamic arrangement. The lead line, illustration, and text are worked across the top, diagonally down and across the bottom.
- 4. Excellent posters are available commercially. However, posters can be made to meet an exact need such as announcing "fire prevention week activities."
- 5. To create a poster, simply take an idea, organize it into a pattern by thumbnail sketching and assemble it into a final form.
 - a. A poster should be large enough to be easily seen, at least 21 by 28 inches or larger in three to four ratio.
 - b. Any one of three color harmonies may be selected from a color wheel: complementary (colors opposite each other); analogous (colors next to each other); and monochromatic (shades and tones of one color). Black, white or gray always may be used with the selected color combinations without clashing. An effort should be made to repeat the colors throughout the board for balance.

- 42.23 Graphs. Graphs show numerical relationships simply and accurately. Masses of statistical data and lists of figures reduced to a graph become more interesting and understandable. The graph, by its nature, is a summarizing and comparing device and its use should be limited to these concepts. The many variations of graphs can be reduced to three fundamental forms: circle; bar; and line. Many special subtypes have been devised, but all are based on one of these basic forms. Two special subtypes are the modern pictorial graph which uses picture symbols in the manner of bar graphs and area graphs which are a variation of the circle design concept.
 - 1. Circle or pie graphs are particularly effective for showing parts of the whole.
 - 2. To compare size of similar items at different times or as parts of the whole, bar graphs are particularly useful. Next to the simple bar graph, the subdivided bar may be the most easily understood. In this type, each bar shows 100 percent of the item being compared with different bars for other sets of data. Bars sometimes run both ways from a base line to indicate change in two different dimensions. The bars of a bar graph are generally darkened. The subdivided or segmented bar should have each distinctive section colored or crosshatched.
 - 3. To tell certain types of statistical stories, line graphs are advised. They usually present data similar to that of bar graphs. Straight lines connect points representing each measured quantity. Sometimes these points are joined with smooth curves rather than straight lines. If the points are clearly indicated, the curved line graph is still easy to read.
 - 4. Area graphs consist of squares, circles or other outline figures of different sizes, and pictorially they represent two or more related totals. These graphs depend upon a comparison of areas to present information and, in consequence, are more difficult to read than the simple graph forms. This is because it is visually more difficult to compare areas than to compare lengths of lines or arcs. Area graphs, therefore, sacrifice some of the definitive quality and readability which are characteristics of effective graphing.
 - 5. Much of the eyecatching appeal of figures which give a three-dimensional effect is attained by the flat, simplified and representational figures that are used in pictographs. Simplified drawings give realism and interest appeal. This type of graph is actually an adaptation of the bar graph and is usually employed to present the same kinds of data.
 - 6. Tests show bar graphs and circle graphs work equally well for presenting percentage data. Bar graphs prove better than line

graphs for evaluating and comparing specific quantities. Long tables, even if reinforced with text, are less effective with groups not experienced in reading tabular material. Field studies indicate the four most effective methods of graphing are:

- a. Horizontal bar graphs reinforced with text.
- b. Short, simple tables reinforced with text.
- c. Graphs without textual reinforcement.
- d. Short tables without text backup.
- 7. When making graphs, be careful. A graph can perform all kinds of tricks, intentional or otherwise.
- 42.24 Charts. Charts are easy to make and use, are inexpensive and easily changed or replaced. At a small cost, they can be very effective and flexible.

Charts help to win attention and hold interest. They can clarify ideas that would be difficult to express in words alone.

An average speaker can excel in getting his point across by using a well-organized set of charts.

- 1. The American Standards Association has set specific minimum criteria and size standards applicable to all types of displays and wall charts.
 - a. The minimum size of the smallest lettering should be about one-fiftieth the height of the sign.
 - b. The width of lines used in making the letters should be about one-eighth the height of the letters. This ratio will result in standard line letters. Light and heavy lines should be one-half and twice the width of the medium lines.
 - c. The standard shape of the chart or display is a height to width ratio of 3 to 4. Normally the width is the larger measurement. Of course, when material is being prepared for use in special equipment, the dimensions must correspond to this need. For example, 35mm color slides require 2 to 3 proportions.
 - d. A general rule also can be applied to determine the needed size of direct display charts. The minimum desired width must be one-sixth of the maximum viewing distance. For example, if a student at the rear of a classroom is 24 feet away from the front blackboard where a poster is to be

displayed, the width of the poster must be at least four feet (one-sixth of 24). Then the standard vertical height would be three feet (3 to 4 ratio).

- 2. Several factors must be considered in making charts. Review the material you wish to present and be sure you are familiar with its major points and implications. The type of treatment may vary according to your particular purposes.
 - a. If the chart is for use as an overview early in a presentation, it may show several different points very briefly.
 - b. If the chart is a summary, the information on it should be quite specific.
 - c. If more than one chart is needed to cover the topic, select a good sequence and prepare separate charts. Two chart forms are used to present data in sequence. The sequence charts are the "strip chart" and the "flip chart."

The strip chart is constructed as a single chart with various steps covered with strips of paper. Important points may be exposed individually by removing each paper strip as desired. Strips can be attached to the chart with masking or cellophane tape.

The flip chart is a series of prepared charts, in sequence, bound together at the top. As the instructor completes use of each chart, the next chart is exposed by turning over the front one. Flip charts can be made from several sheets of newsprint or large drawing paper. Fasten sheets together at the top with thin metal or wood strips on front and back. Mount the supporting strip at the top of an easel.

3. Good charts often use a mixture of pictures, drawings, cartoons, graphs, diagrams, and words.

42.25 - Other Methods.

1. Flannel Board. A flannel board capitalizes on the fact that two pieces of long-fibered cloth, such as flannel or felt, will cling to each other. Practically speaking, the flannel board or slap board is little more than a piece of rigid material covered with cotton flannel, felt, wool, suede cloth or paper. These materials are available in a variety of colors. Any lightweight coarse material will cling to the board automatically. Any smooth surface will adhere if it is backed with sandpaper, flocking or any rough-textured material.

- a. Flannel board stories or outlines can be developed as a presentation technique. Remember to keep it simple. Do not attempt to include too much detail no matter how large the flannel board. A few simple, strong symbols, well-explained as they are presented, are better than a complex display.
- b. Some easily adhering materials are: colored yarn; steel wool; pipe cleaners; garnet paper; bits of balsa wood; velvet; coarse string; suede; blotting paper; sponge; wood; and embroidery floss.
- c. When objects (such as pictures, drawings, signs) are backed with strips of these materials, they will adhere without visible support. The speaker who uses the flannel board is thus able to build a presentation piece by piece in an orderly sequence.
- d. As with any teaching device, the flannel board requires some skill in its use for maximum effectiveness.
 - (1) It is desirable to tilt the board slightly back at the top to reduce glare on pictures and also to help materials stick firmly to the surface.
 - (2) When placing a character on the flannel board, apply it with a slight downward movement accompanied by firm pressure, otherwise the material may slide off the surface.
- 2. <u>Hook 'n Loop</u>. Unlike flannel or magnet panels, you risk no possibility of having your illustrations fall or slip out of place with this method. It teams easily applied nylon hook tape with countless tiny nylon loops interlocking to anchor virtually any size material with almost unbelievable strength. Its ingenious design grips instantly, but releases easily to permit split second changes.

Hook 'n loop fabric and tapes are available from visual aid sources.

- 3. <u>Blackboard</u>. This is probably the most familiar teaching device. It is also one of the most used visual tools in any programmed talk. In spite of its availability, all too rarely is it used for graphic or pictorial presentation.
 - a. A blackboard and chalk are generally available. A spontaneous sketch just at the right time will clarify a point that words alone will not always express.

- b. Sketching before a group will help hold the attention of the audience. Movement attracts attention. In blackboard work there are several sources of movement. The speaker turns to the board, selects a piece of chalk, and raises his hand to draw.
 - (1) There is at once attention as well as anticipation. One technique involves tossing the chalk and catching it before a blackboard entry is made.
 - (2) During a sleepy period, if the speaker takes a piece of chalk and starts to draw, he immediately attracts the attention of each member of the audience (except those already asleep).
- c. A carefully prepared blackboard drawing made beforehand does not have the same vitalizing effect as the strong, spontaneous sketch, emphasis word or key point made at just the right moment during a program. Listed are some points which should be followed when you use a blackboard.
 - (1) Do not hide your writing.
 - (2) Do not write too much at one time. Speak to the group, write a little, then stand aside and talk. Continue this procedure.
 - (3) Speak directly to the group. Do not talk to the board.
- d. One of the latest developments in chalkboards is the porcelain surface. Because of its steel base, magnets will adhere to its face.
 - (1) Papers may be displayed without tacking, taping and defacing the board surface.
 - (2) A variety of instructional materials equipped with magnetic holders is available in myriad colors, magnetic frame sticks can hold charts to the steel surface and magnetic points can be left on the board surface pointing to the item being discussed.
 - (3) The magnetic board is particularly useful where displayed items are to be moved about or relocated as problems are changed or solutions are developed.
- 4. <u>Pictures</u>. These are most useful when the concept of motion is not required. They are versatile, inexpensive and convenient to use.

- a. The surface of pictures and charts may be protected from soil and wear by covering with transparent acetate or acrylic spray. A thin cellulose acetate is manufactured by several firms which is waterproof and requires no paste, moistening, or ironing. It is applied merely by hand pressure.
- b. A more durable method for preserving and mounting pictures is to encase them in damage-proof acetate lamination, a translucent plastic board available either in light or heavy weight materials and either dull or glossy finish. Paper-backed materials may be mounted on unbleached muslin or affixed to a hardboard backing.

The following suggestions for using pictures emphasize their special values:

- (1) Do not use too many. In contrast to motion pictures, they permit a thorough analysis of content. Attention can be directed to important points and study continued as long as fruitful. Too many pictures at one time confuses the viewer. Detailed, thoughtful study takes place slowly and is preferable to superficial glimpses of large numbers of illustrations.
- (2) Reduce the verbal load. Pictures allow you to cut down on words.
- (3) Use specific questions. Picture learning can be developed through specific and skillful questioning to achieve picture readers rather than picture scanners.
 - (4) Use contrast, comparison and continuity. Look for differences, compare similarities and develop progressive steps by organizing a series of pictures into logical sequence.
- 5. <u>Cutouts</u>, <u>Cutaway Models and Mock-ups</u>. These are extremely useful to explain the functioning of machinery and equipment and to illustrate moving parts.
 - a. Individual parts of any mechanical device can be duplicated in wood, painted and assembled to function like the original. Similarly, actual equipment can have portions cutaway to reveal the interaction of moving parts usually hidden from view. Difficult subject matter will get across quickly through visual understanding.
 - b. A mock-up usually is a miniature replica or scale model of some place or thing. Mock-ups can be made to represent any physical problem or changing condition.

6. Conference Pad. This is a portable stand which holds kingsize paper sheets. The bit advantage of this device over the conventional blackboard is that conference notes and sketches or ideas discussed need not be wiped off to make room for others, and they can be retained for future reference.

On paper pads, the lines are usually light blue and barely visible from a short distance. Paper pads can be purchased unlined or in one-half or one inch squares. The lines are very helpful in making your own charts or drawing diagrams before a group. The usual size of these pads is 27 by 34 inches; however, giant paper pads are available in the 45 by 34 inch size.

7. <u>Pointer</u>. This is a must when making a visual presentation with charts, slides, or other large visual aids. Do not obscure the picture with either your arm or body.

A pointer offers some advantages. It usually prevents you from turning your back on the audience while locating a particular feature. Also, a pointer in the hands of a speaker can help increase his confidence and prevent the hand-conscious speaker from using his trouser pockets as a resting or hiding place.

8. Overhead Transparency Projectors. These are light in weight, easy to operate and can be used in a fully lighted room.

The projector uses 10 by 10 inch transparencies with which it can project an 8 foot image from a distance of about 12 feet.

A transparency is the sheet of transparent film on which an image is made. It is this transparency which is laid on the overhead projector for viewing by your audience. Some of the advantages of using the overhead projector are:

- a. Once a transparency is made, it is permanent. It will not fade with use or time. However, you can erase when you use the rolls of acetate and a grease pencil.
- b. The speaker can write on a clean transparency using a soft grease pencil and thus make slides immediately. In this way, the roll can serve as a blackboard.
- c. The speaker operates the projector while facing the audience and at the front of the group.
- d. It is simple to highlight areas of interest with a pencil on the slide while it is being projected.
- e. Anything transparent and relatively flat up to 10 inches square can be projected.

- f. Because material is enlarged, each person in the audience can see the material easily.
- g. The room does not have to be darkened.
- h. The use of overlay slides adds a dramatic and attention arresting feature to the projection.
- i. The machine is equipped with a removable clear acetate roll on which teaching illustrations or student problems can be prepared in advance and rolled back from view until ready for showing.
- j. Slides may be made with grease pencil, plastic colored inks, lumichrome colored pencils, adhesive-backed, preformed letters or carbon paper. India inks or paints usually crack off the surface; however, poster paints will stay by adding muscilage and a few drops of glycerine. Only the plastic inks, lumichrome pencils and colored acetates will project in color; other colored materials will appear black.
- k. Any written or drawn configuration on a slide may be revealed gradually on the screen through a striptease method of progressive disclosure.

Several rules for this type of projection should be considered.

- a. The projector should be placed so the gooseneck, which contains the projection lens, does not obstruct the view of the audience.
- b. The operator should be seated if possible.
- c. The screen should be high and tilted forward at the bottom. If the screen is not tipped, the image will be larger at the top than at the bottom (keystone effect). The screen may easily be tilted to the proper position by mounting the screen on a "pole-cat", which consists of a lightweight metal pole equipped with suction cups that fasten the pole to the ceiling and floor in the tilted position. The screen may also be mounted on a diagonal tape or rope and portable screens can be tipped forward by placing books under legs behind the screen. These actions also reduce the keystone distortion.
- d. For written or drawn information, the cardinal rule is to keep it short and simple. Letters should be no less than 1/4 inch in height. Use no more than six or seven words per line and not more than ten lines on a single projection. If all the original material is readable with the naked eye at 10 feet, the transparency will project adequately. Lines

thicker than 1/8 inch do not reproduce as well as thin lines. Large solid areas present the same problem. For solid areas larger than 1/4 inch square, shade the area with a pattern of dots or lines.

9. Opaque Projector. This projector is versatile and can project almost any kind of flat material up to 10 inches square. While this projector can use nearly any printed material for projection, the quality of the projected image depends on the quality of the original material. Even-colored material will project well under proper conditions.

Opaque projectors throw a reflected image of the copy of the object through a lens system onto a screen. Their light efficiency, however, is lower than that of other projector types which beam directly through transparent film.

The opaque projector's great value lies in its ability to project written and pictorial material or flat objects without any time spent in preparation. However, special teaching sequence strips can be easily made. They can be used to introduce subjects, to present new information or to review and test. Opaque strips lend themselves ideally to use with other media in meeting any of these purposes. The material also stores easily after it has been shown.

- a. Several rules should be followed when using the opaque projector:
 - (1) Align the center of the projection lens with the center of the screen to avoid distortion of the projected image. (Keystone effect)
 - (2) The brilliance of the picture is directly related to room darkness. The darker the room, the more brilliant the picture will be. Remember to allow for adequate ventilation when attempting to darken a room.
 - (3) Because of the difficulty with illumination when an opaque projector is used, the projector is usually placed close to the screen to make the picture as brilliant as possible. This also reduces the size of the picture and limits the size of the audience that may view it.
- b. The tray that holds the projected material will adjust automatically to accommodate various thicknesses of copy. Lightweight copy should be mounted on cardboard to prevent the air stream from moving the material.
- c. Some opaque projectors will also handle lantern transparency slides. On these combination projectors, it may be necessary to move the mirror handle to "Opaque" before the projector can be operated.

- 10. <u>Tape Recorders</u>. These are becoming increasingly popular and useful for education purposes.
 - a. To make a tape recording, set up the recorder according to the manufacturer's instructions. Turn on the amplifier, let it warm up at least five minutes, then adjust the recording level. The recording level control on the recorder corresponds to the volume control on an amplifier. Its function is to set the level of recording without overloading the magnetic particles on the tape. A neon bulb is usually used as an overload indicator. If the over-modulation signal disappears while talking into the microphone, an occasional flash may occur even when the level is correctly set. These flashes are caused by combinations of sounds and do no harm. Ignore them. You are now ready to record. Use the following steps as a guide:
 - (1) Start recording the talk. Speak directly into the microphone. Speak slowly and distinctly.
 - (2) Watch the recording level indicator. If it shows more than an occasional fluctuation, move back slightly from the mike. Do not try to adjust the level of your voice or change the volume setting.
 - (3) After the talk is recorded, rewind it, and listen to the recording. Watch for errors of timing, slips of the tongue and other imperfections. If an error was made, you may be able to erase the affected portion and re-record that section only. Otherwise, generally, the whole tape should be done over again if several bloopers must be corrected.
 - b. Tape recorders and tapes require relatively little care.
 - (1) To clean the record-playback and erase heads, moisten a clean lint-free cloth with a cleaning agent designed for that purpose. Wrap the cloth around your index finger and brush it over the head surfaces lightly. Sound drum, head shield and lower stabilizer roller would be cleaned similarly.

Occasionlly while in playing position, note if the felt pads are worn or are not pressing tapes squarely against pole faces. New felt pads may be cemented in place with household cement. Pads should cover shiny pole face of the recording head and the side of the pad touching the head should be free of cement.

(2) Magnetic tape is a plastic ribbon with a coating of metal particles on the dull-finish side.

With reasonable care, recorded tapes can be preserved indefinitely. Tapes should never be stored near a magnetic field, such as an electric motor. Heat can cause plastic tape to curl and buckle. Tape can be torn by warped or cracked reels or by careless handling or operation of the machine.

The most common tape problem is splicing tape that has broken. Tight, noise-free splices can be easily made. The broken ends of the tape are overlapped, with the recording side down. Both pieces are cut simultaneously on a 60° diagonal. Then the matching ends are butted closely together and the aligned ends are covered with non-shrinking cellophane tape (scotch Splicing or Magic Mending tape). Trim off excess splicing tape (cut into the recording tape backing very slightly to eliminate possibility of a sticky splice). With a diagonal cut, some usable part of the tape is always passing over the pickups.

43 - FIRE PREVENTION EDUCATIONAL SCHOOL PROGRAMS. Children are responsible for a substantial number of wildland fires every year. Many fires caused by children are the result of playing or experimenting with fire; many others are caused by malicious mischief. Some fires are the result of emotional disorders which are manifested in compulsive fire-setting at an early age.

In order for fire prevention specialists to reduce these fires, it is necessary to develop contact with children and develop programs which emphasize cause and effect of improper fire use. Schools offer an opportunity for approach under controlled circumstances.

- 43.1 Program Preparation. In preparing the topic for presentation at a school, you should keep in mind that your prime job is to get your message to the students. You may not carry out this task with the skills of a teacher, but you have the distinct advantage of being a professional firefighter speaking as an authority on an element of fire.
- 43.2 Pre-School Programs. Studies have shown that reaching children of pre-school age with a fire prevention message is essential in our effort to reduce wildland fires. Work with pre-school children can reduce a major source of wildland fires caused from kindergarten to second grade.

Pre-school children are just beginning to learn what goes on about them and may have mistaken concepts. Pre-schoolers test their concepts in many ways. Dramatic play and talk are ways of testing what they have seen and heard. Discussing their ideas with adults is one of the most effective ways pre-schoolers clarify their concepts. Your own first-hand experience is helpful and should be included when you talk to pre-schoolers.

43.3 - <u>Primary Grades</u>. Primary grade children are active 5 to 8 year olds. They are alert and keen observers with vivid imaginations. They learn best by doing, by participating, by becoming involved with their hands, feet, and body.

The interest span among the four age groups varies considerably, so you should plan your program length, class size and course content accordingly. Do not try to present too many ideas. Use one or two simple themes.

43.4 - <u>Intermediate Grades (Fourth, Fifth, and Sixth)</u>. Intermediate grade children have perhaps the greatest range in mental and physical growth than any other age group.

The 9-year old fourth grader has begun the systematic study of grammar. He is learning to use a telephone, to write letters, and to use a dictionary. His vocabulary is increasing.

Table top demonstrations or visual aids to explain the fire triangle, the effects of fire on the watersheds, the loss of soil due to erosion and flood damage can be very effective because of what is being taught in science.

43.5 - <u>Junior High School</u>. The typical junior high school student is experiencing an awkward stage of adjustment. These youngsters are undergoing the mental and physical challenges of adolescence.

This age group overall is not only very impressionable and creative but also inconsistent. Anyone teaching this age group must be extremely alert and flexible to cope with their challenging behavior patterns. In spite of all this, these children are probably the most rewarding of all to instruct. These youngsters are inclined to react spontaneously and somewhat unpredictably to changes in classroom situations.

- 43.6 <u>High School Programs</u>. High schools offer an opportunity to reach young and active citizens with fire prevention messages. Here is potential for both immediate and long-range results. Most students are fairly serious and generally well-informed about the world around them. Whether average students or below, they have probably been exposed to advanced teaching techniques and to a wider range of subjects than many adults.
- 44 MEDIA CONTACTS. Mass media is the key to a successful fire prevention campaign. The fire prevention specialist is in the position of obtaining and disseminating the material for this effort.

- 44.1 Press Relations and Newswriting. Working with press, radio and television is one way to keep the public informed about fire prevention.
 - 1. Get to Know News People. The first step is to get to know the news people in your area and let them know you and what you do.

Visit them and tell them about the public lands and the type of news you can furnish them.

- 2. When to Visit? Be sure to time your visits so that you don't catch news people at their busiest time.
- 3. How Do You Know Which News People to Contact? On weekly newspapers, it's usually no problem as to which person to contact since the editor often does most of the reporting also.

You should have more than one contact at each newspaper. Many papers now have writers who specialize in conservation or environmental articles.

For radio and television, the station manager is always a good contact. The news director is another person to know and at television stations, the assignment editor.

- 44.11 What is News? In trying to decide whether a particular activity is newsworthy, ask your self if other people would want or need to know about it. If the answer is yes, then it's worth a news item.
- 45 EXHIBITS AND DISPLAYS. Exhibits are one element of the broad audiovisual field. Effectiveness of audiovisual presentations is well-known. Because of its exceptional impact, precise planning and execution is important and worthwhile.
- 45.1 What Are Situations in Which Exhibits Should Be Considered?
 - 1. Meetings (several days, one day, conferences, etc.)
 - 2. Schools (science fairs, open houses, room or class requests)
 - 3. Fairs (county, regional)
 - 4. Store windows (special weeks, on request)
 - 5. Permanent or semipermanent hot spots (store windows, museums, tourist attractions, public buildings, office buildings, hotels, motels, banks, airports)
 - 6. Centennial or other celebrations.
 - 7. Parades (anyplace where there are many people)

45.2 - What Makes an Exhibit Good, Effective, Worthwhile?

1. Stopping power (attention-getting power). How is this achieved?

- a. Color
- b. Personal contact
- c. Motion
- d. Visual impact (arrangement)
- e. Audience participation.
- f. Sound
- g. Uniqueness (novelty)
- h. Give-aways
- i. Timeliness
- j. Demonstration (people doing things)
- k. Brightness (lighting)
- 1. Personal appeal (result of analyzing potential audience)
- m. Appeal to controversy or conflict.

2. Clear, simple message. How is this achieved?

- a. Clear, simple theme (How to build a safe campfire, Use your ashtray, Don't start a wildfire)
- b. Short, easily-read legends, captions. Tell it with pictures not words. (average looking time is less than 2 minutes)
- c. Final positive statement (only you can prevent wildfires)
- 3. Exhibit is professionally planned and executed.

45.3 - What Are Sources of Exhibits and Exhibit Material?

1. Supervisor's Office.

- a. Natural resource exhibits.
- b. Photo files.
- c. Slide library.

- d. Posters.
 - e. Equipment, tools.

2. Regional and State Office.

- a. Portable exhibits (need supplementing)
- b. Semiportable exhibits (fibreglass Smokey)
- c. Slide file.
- d. Photo file black and white, color.
- 3. Other agencies, natural history centers, etc.
- 4. Merchants, Utilities, Services. Art work, mannequins, sign-making services and materials, display boards, easels, turntables, motion devices.

45.4 - These are obvious steps in making and presenting successful exhibits:

1. Planning.

- a. Who will see the exhibit?
- b. What do you want to tell them? What is the message?
- c. What exhibit will stop the audience and give them the message?
- d. Where or how can I get such an exhibit?
- e. When can I place the exhibit?
- f. How will I maintain or man it?
- g. Collect materials.

2. Execution.

- a. Assemble and place exhibit.
- b. Maintain and man effectively.

46 - COOPERATIVE FOREST FIRE PROTECTION SMOKEY BEAR PROGRAM.

46.1 - The program started in 1942, partially as a result of the shelling of the Southern California coast by the Japanese. Because of the war effort, fewer firefighters were available, large quantities of heavy equipment, such as bulldozers, were being shipped to war zones and thus

fewer resources were available for forest firefighting. This caused great concern among forestry officials. The Supervisor of the Angeles National Forest contacted the War Council and they agreed to take on a forest fire prevention awareness program.

46.11 - Smokey's Debut. State and U. S. Foresters appealed for help from the newly organized War Advertising Council, now called the Advertising Council, Inc. This public service agency agreed to sponsor a nationwide forest fire prevention campaign. The Foote, Cone and Belding/Honig advertising agency of Los Angeles contributed its facilities and talents to help conduct the campaign.

Copy men and artists brandished pens and brushes, writing text and designing colorful campaign ads. Wartime slogans, such as "Careless Matches Aid the Axis" and "Our Carelessness, Their Secret Weapon," were used in the 1942 and 1943 campaigns.

Walt Disney's Bambi proved a popular exponent of forest fire prevention on 1944 posters.

In 1945, the advertisers experimented with still another idea. They portrayed a bear in ranger's hat and firefighter's dungarees, a natural peacetime symbol which melded the emotional appeal of an animal with the ruggedness of a firefighter.

The bear was named Smokey. This friendly character and his slogans slipped into the hearts and homes of millions of Americans: the result - a decrease in wildland fires.

Smokey made his public service debut on posters and car cards in 1945. Magazines and newspapers carried fire prevention advertising, always showing Smokey in ranger's gear.

46.12 - <u>Budget</u>. Annually more than \$1 million are spent on the Smokey Bear program. The annual budget includes \$176,000 Clark-McNary II funds, \$100,000 National Forest funds and \$200,000 Smokey Bear royalty funds.

About \$650,000 worth of materials are purchased each year and processed through the Smokey Bear shop for distribution nationwide and also to Canada.

46.13 - The Advertising Council. The Advertising Council, Inc. was formed in January of 1942 as the War Council. It was organized to marshal the forces of advertising to help support the vital war effort which later directed the scrap metal, scrap lumber, war bond, nurses recruitment and other wartime projects. It was and still is subsidized by both business and the advertising communities. Following the end of WW II, the word "War" was dropped and it became known as the Advertising Council, Inc.

INTERAGENCY

FIRE PREVENTION GUIDE

CHAPTER 50 FIRE PREVENTION ENGINEERING

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Appendix

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50 - FIRE PREVENTION ENGINEERING. Fire prevention engineering is the use of all engineering processes to reduce or eliminate hazards and risks of fire.

Fire prevention engineering makes it possible to alter an environment by one or more of three methods:

- 1. By removing the heat source from the fuel.
- 2. By reducing or eliminating the fuels where the heat source must remain.
- 3. By shielding the fuel from the heat source to prevent contact.
- 51 FIRE PREVENTION INSPECTIONS. The objective of the California Interagency Regional Fire Prevention Program is to reduce significantly the incidence of destructive fires in timber, brush, and grasslands and the resulting loss of life and property. One of the very necessary tools of the fire prevention program is the fire prevention inspection for compliance with Federal, state and local fire laws.

The success of a compliance program will depend on the fire prevention specialist, the program plan and the degree of implementation and followup.

51.1 - Inspection Program.

51.11 - The Inspection Program Plan. The plan should be an operating plan to conduct fire prevention inspections with time tables and specific assignments for all personnel. This should include training to get maximum results.

Plans should be coordinated with programs of adjacent Districts, Forests, Fire Districts, California Department of Forestry and other agencies.

51.12 - Qualifications. The fire prevention specialist must possess tact and qualities of leadership to sell the public a necessary community service. Personal characteristics will have considerable bearing on success or failure.

Of primary importance is personal appearance, tact and ability.

Personnel making inspections must keep two points in mind:

- 1. Size up conditions of operation where a fire probably will result from hazards and risks coming together.
- 2. Reduce fire occurrence by obtaining compliance with the law.

- 51.13 Tools. For a fire prevention specialist to perform the duties successfully, he should be equipped with certain tools. All these tools will not be used on every inspection but should be available when needed.
 - 1. Uniform, badge, shoulder patch and nameplate should be worn.
 - 2. Inspection form and notebook.
 - 3. Flashlight.
 - 4. Copy of applicable laws and ordinances should be carried for quick reference.
 - 5. Fire prevention materials. Should be available for handout.
 - 6. Binoculars. Useful for powerline inspections.
 - 7. Camera.
 - 8. Prior records.
- 51.14 <u>Inspection Procedures</u>. Your program is either made or lost by impressions created during the first few minutes of the approach to your contact. Therefore, the specialist must use all his abilities emphasizing courtesy and tact.

When entering a property, the specialist should observe the hazards and risks. Common hazards are likely to be there; however, the specialist must be alert for others of a less obvious nature.

- 1. <u>Timing.</u> The proper time of day to inspect properties will be determined best by the activities involved. The prevention specialist should attempt to cause as little inconvenience as possible.
- 2. Observations During Approach.
 - a. The grade, condition of road and accessibility of approach should be observed.
 - b. Give attention to the general surroundings of buildings and exposures to other buildings and vegetation.
 - c. Consider the structures, mechanical equipment, etc., in relation to their use and exposure to hazardous fuels.

3. Contact.

a. The specialist's first duty is to make proper contact with the property owner or whoever is in charge of the premises and show his identification.

- b. Explain the purpose of the contact. Create the idea you are there to help.
- c. Permission to inspect should be obtained. Request that someone accompany you. If permission to inspect is refused, withdraw as cordially as possible and immediately notify your supervisor.
 - d. Offer to return at a later date if the present time is not appropriate or causes inconvenience.
- e. This is a good time to discuss the agency fire control responsibility and the best method of reporting wildfires.
- 51.15 The Inspection. There is no standard among fire prevention specialists as to where the inspection should start. As long as the specialist knows what he is looking for and does not allow himself to be sidetracked, he may start at the most logical place.

1. Maintain Communications.

- a. Be polite at all times.
 - b. Be a good listener.
 - c. Do not comment on or enter into neighborhood arguments.
- 2. As this is taking place, sizeup the property, decide on starting point, lead owner into the inspection.
 - a. Physically show hazards and violations.
 - b. Mention possible liabilities, but without actual or implied threat.
 - c. Make favorable comments about the premises, particularly comment on hazard reduction work already accomplished.
 - 3. Be Honest. If you don't know the answer to a question, tell him you don't know, get the answer for him.

4. After Inspection Conference.

- a. After the inspection has been completed, the specialist is ready for a discussion with the responsible party, including an explanation as to which are recommended fire safe practices and which are requirements of law, ordinances or regulation.
- b. The specialist should be constantly alert to assure that the recommendations are both reasonable and practical.

c. All violations should be noted in writing. A definite and reasonable time limit should be set for compliance.

5. When Leaving.

- a. Thank the owner or occupant and advise where the specialist can be contacted. Business cards are a good and professional way to leave this information.
- b. If promises are made to return at a particular time or date, be sure you or someone else keeps the appointment.
- 51.16 Reinspection. A followup inspection is absolutely necessary. Regardless of how many new (or initial) inspections are made, the owner or occupant should understand that the specialist will be back.
- 51.17 Reporting Fire Prevention Inspection. To facilitate a planned prevention program, certain tools are made available to field managers. Agency forms are available for inspections to structures, powerlines, equipment, organizational and special use facilities for fire compliance.

52 - STRUCTURES AND IMPROVEMENT INSPECTION.

52.1 - Analysis and Planning. Before starting any fire prevention program, the analysis and planning phase should be instituted and a written plan completed. A specific structure and improvement inspection action program should be part of the unit fire prevention plan.

52.11 - Preinspection Planning.

- 1. The written fire prevention plan should contain a portion directed to structure and premise inspections. Consideration should be given to:
 - a. Time of year (emphasis during spring months).
 - b. Absentee ownerships, i.e. summer homes.
 - c. Manpower available, including use of fire crews for routine residence inspections.
 - d. Priority to critical areas.

The inspection plan should also include a map on which areas or blocks are to be systematically covered and have been delineated, thereby ensuring equal treatment.

2. Advance Letters. Advance letters used in combination with inspections have produced results. The advance letter should contain all of the following:

- a. The necessity of fire hazard reduction.
- b. Advise that the agency will be contacting the property holder to make a fire prevention compliance inspection and the approximate date.
- c. The inspection will consist of a check for compliance with existing fire laws.
- d. The measures by the owner necessary to adequately reduce the fire hazards to assure compliance with Federal, state or local laws. This can be keyed to an enclosed Fire Law Excerpts pamphlet.
- 52.2 <u>Inspection Procedure</u>. The time of day that premise inspections are conducted will vary with the type of premises inspected. For example, any time after 8:00 AM may be alright for business establishments or recreational camps. However, inspection of dwellings, both permanent and seasonal, usually requires the inspection to be made after 10:00 AM.

The approach to the premise by the specialist is important. If closed gates are encountered, they should be reclosed after driving through. Also, if entrance roads are dirt, drive slowly to minimize dust conditions.

When driving into the property to be inspected, the specialist should make observations of the grade and accessibility of approach and the general conditions of the road.

1. Inspection of Roof.

- a. Free of leaves, needles and other dead vegetation.
- b. Type, construction, condition, overhead wires.
- c. Height and condition of surrounding buildings (exposures).
- d. Chimneys (screens and clearance).
- e. Sprinkler system-tanks, valves, pressure.
- f. Drainage (gutters clean).
- g. Deadwood removed from overhanging trees.

2. Exterior Inspection - Yard Area.

- a. Required clearance around structure.
- b. Storage and disposal of combustibles.

- c. Avenues of approach for fire equipment.
- d. Fire escape routes.
- e. Yard hoses, hydrants, hose boxes and carts.
- f. Water supply for fire trucks.
- g. Incinerator (clearance and screening).
- h. Butane tanks.
- 3. The specialist should sizeup the area to be inspected, decide on a starting point and lead the owner or occupant into the inspection. Physically show the occupant the fire hazards and violations, if any. It may be found that although a violation exists, corrective action may be taken immediately. For example, move a barreltype incinerator from a grassy area to an area already cleared on the same premises.

If the occupant has a burning permit, ask for his copy and retain it during the course of the inspection. Return the permit at the end of the inspection with your initials and date on the bottom edge.

Explain that if a fire should start on his property and spread to a neighbor's property because of certain hazards not in compliance, it may be the neighbor would have recourse for damages through the courts.

An interior structure inspection may be requested by the owner or occupant. Politely explain that you have no right by law to make such an inspection. It is well to give the owner or occupant a copy of the handout titled "Your Home Check" and attempt to get him to make the decisions on what needs to be done.

After the specialist has inspected all portions of the premises, he should explain all hazardous conditions uncovered by the tour of inspection.

An effort should be made to make the occupant a participant in the solution for corrective action. Very often the occupant will offer a solution that will exceed the terms the inspector was preparing to request. The specialist should assume the role of an advisor in offering suggestions. The owner must be allowed to work out his own problem.

4. All fire law violations should be noted in writing and a definite time limit set for compliance. The time limit set by the specialist should be reasonable for the amount of work to be done. A good

practice is to allow the owner to set the time if within reason. In that way he will consider it a promise and have the work completed on time.

If a promise is made by the specialist that he will come back at a particular time or date, he should contact the owner or arrange for someone else to keep the appointment. If, due to circumstances, he cannot return, he should contact the owner or arrange for someone else to keep the appointment.

5. A followup system is absolutely necessary to make premise inspections effective. If fire law violations exist, the owner or occupant should understand that the specialist will be back for a followup inspection to assure compliance.

If either existing hazards or risks on the premises warrant it, frequent reinspections should be made. They may require only short visits, but will assure compliance with fire laws.

53 - EQUIPMENT DESIGN AND MODIFICATION.

- 1. Mechanical equipment must comply with certain fire prevention laws which are designed to reduce or eliminate the risk of fire. In addition to these laws, it is the agency's responsibility to:
 - a. Suggest design changes in mechanical equipment so as to prevent fires.
 - b. Recommend changes leading to "fire safe" operating practices.
 - c. Make owners or operators of defective or poorly designed equipment aware of their responsibility to prevent fires and of their possible liability for negligent operation.
 - d. Develop and maintain the USFS Spark Arrestor Guide with current amendments for field distribution.
- 53.1 <u>Inspection Programs</u>. The number of fires originating from machines indicates that inspections of mechanical equipment should receive high priority.
 - 1. <u>Timing.</u> Inspection of mechanical equipment should start prior to the time native fuels become dry. Inspection of any newly started activity such as harvesting or a construction job should start as soon as the equipment arrives at the site. If at all possible, arrange spring inspections of equipment in the yard as a service to contractors. This will avoid future costly shutdowns when operating in the wildland without spark arresters.
 - 2. <u>Risks.</u> Certain risks from the use of mechanical equipment exist besides those specifically regulated by fire prevention laws. These

are:

- a. Operating practices not performed in a fire safe manner.
- b. Equipment which is poorly maintained.
- c. Equipment which has a design defect which makes it a risk.
- 53.2 Spark Arresters. References: USFS Spark Arrester Guide and applicable Federal and state fire laws.

53.21 - Qualifications and Testing.

- 1. Spark arresters listed in the US Forest Service Spark Arrester Guide are acceptable when "qualified and rated." Generally this precludes the use of any arrester not "qualified."
- 2. If an arrester has not been rated or if there is doubt concerning an arrester, shut the equipment down and check with the supervisor or for an update from the San Dimas Equipment Development Center.
- 3. The interior baffles must be in place for the arrester to function correctly. These baffles should be checked after the engine stops and after the exhaust stack has cooled. The check may be made by probing lightly with a suitable size stick or checking visually with the aid of a flashlight.

53.22 - Maintenance.

- 1. Maintenance practices can be checked by removing the clean out plug. If large accumulations of carbon particles are present, advise the owner/operator that maintenance should be more frequent and and thorough.
- 2. The exterior can be checked visually for burnouts. Check carefully around dents for pinhole size burnouts.

53.23 - Installation.

1. All arresters have a rated flow, measured in cubic feet per minute (CFM), which is of great importance. Incorrect size will allow carbon particles to escape and sometimes, if too small, may damage an engine. Use the Spark Arrester Guide to determine the engine's exhaust flow and the correct size arrester.

NOTE: Do not recommend any certain make of arrester unless it is the only one which will serve that particular engine.

2. Improper installation of spark arresters can cause a malfunction of the arrester. Arresters installed too far (over 30 inches) from

the exhaust manifold will "carbon-up." This in turn may lead to hot carbon chunks coming out of the arrester when the throttle is opened after the engine has been running slowly.

3. To operate most efficiently, spark arresters should be installed between 6 and 30 inches from the exhaust manifold.

However, arresters may be installed on high compression gasoline engines at distances greater than 30 inches due to higher exhaust gases temperatures being retained in the exhaust system.

- 4. Arresters may be jammed too far down on the exhaust pipe. This will cause excessive back pressure on the engine and the arrester will fail to trap carbon particles. Most arrester manufacturers build stops in the inlet to prevent this, but the arrester can be forced past these points.
- 5. Arresters are rated for horizontal or vertical mounting. Occassionally, a particular model is rated for both positions. Check the correct position for each arrester.
- 6. Any spark arrester must be installed in such a manner that it does not allow flames or heat to ignite any flammable material. Examples of installations which are not correct are:
 - a. Installation causing leaves, chaff or other flammable material to collect around the arrester and exhaust manifold.
 - b. The arrester or exhaust pipe placed so it can come in contact with standing grass or brush.
 - c. Installation is made so that any flammable part of the equipment is exposed to sufficient heat to cause fire.
- 53.24 Turbo-Charged Engines. A turbo-charger is an exhaust-driven air pump mounted on or an integral part of the exhaust manifold. The exhaust gases strike a turbine wheel causing it to spin at a very high RPM. The turbine wheel drives an air pump which forces filtered air into the engine air intake increasing engine power. These engines are easily recognized by their large exhaust stacks (usually not less than four inches in diameter).

Turbo-charged engines, where all of the exhaust gases pass through the turbo-charger, are considered to be properly equipped. However, when these engines are equipped with a starting engine, the starting engine shall be equipped with a qualified arrester.

NOTE: Gear, chain or belt driven super-chargers are not turbo-chargers, and these engines require spark arresters.

53.25 - Exhaust Scrubbers.

- 1. Exhaust scrubbers are devices to purify the engine gases and prevent exhaust sparks by running the entire exhaust through a water bath and charcoal filtering system. Exhaust scrubbers on mobile equipment are considered spark arresters only when filled with water and operating correctly.
- 2. These units will cause fires if not functioning properly. When the system is out of water, the exhaust gases heat the charcoal filtering material to its ignition point and discharge the glowing charcoal with sufficient force to cause fires ten feet away.
- 3. Trucks or earth movers equipped with scrubbers can be recognized by an auxiliary water tank mounted on the right side of the vehicle either on the bumper or behind the right front wheel fender.
- 53.26 Arresters and Mufflers. All gasoline, steampowered and diesel equipment used in and around logging, lumbering, force account maintenance and construction projects or other woods operations must be equipped with effective spark arresters or mufflers. Trucks upon which it is impracticable to maintain a muffler must have the exhaust pipe extended up and above the cab. Exhaust-driven, turbo-charged engines do not require spark arresters.
 - 1. Information on identification of spark arresters is contained in Spark Arrester Guide Forest Service, USDA, May 1976. The Guide will be updated periodically.
 - 2. A standard has been established for exhaust systems on portable saws powered by internal combustion engines. This standard, SAE J335b, is for all saws purchased in California after June 30, 1977. Standard SAE J335b involves:
 - a. An exhaust system equipped with a spark arresting device designed to retain or destroy 90 percent of the carbon particles having a major diameter greater than 0.023 inches (0.584mm). The spark arresting device shall be constructed to permit easy inspection, cleaning and parts replacement.
 - b. An exhaust system constructed so that the exposed surface temperature shall not exceed 550°F (288°C) where it may come in direct contact with wildland fuels.
 - c. An exhaust system constructed so that the exhaust gas temperature shall not exceed $475^{\circ}F$ (240°C) where the exhaust flow may strike wildland fuels.
 - d. An exhaust system constructed in such a manner that there are no pockets or corners where flammable material might

accumulate. Pockets are permissible only if it can be prevented from accumulating in the pockets.

- e. An exhaust system constructed of durable material and so designed that it will, with normal use and maintenance, provide a resonable service life. Parts designed from each replacement as a part of routine maintenance shall have a service life of not less than 50 hours.
- 3. On saws purchased prior to June 30, 1977, an official standard has not been established for powersaw arresters. Equipment Development Center tests have provided some guidelines. The following requirements are suggested for powersaw use on the wildlands:
 - a. The arrester should have a woven screen with a maximum opening size of 0.023 of an inch.
 - b. The screen should be constructed of durable heat and corrosion resistant wire which will satisfy the specified service life (8 hours) and life expectancy (50 hours).
 - c. Total screen opening area (effective exhaust area) should be not less than 125 percent of the engine exhaust-port area.
 - d. Construction of the unit should permit easy removal and replacement of the screen for field inspection and cleaning.
 - e. The arrester should be capable of operating for a minimum of 8 hours before cleaning is needed.
 - f. The screen should have a 50-hour life expectancy.
 - g. The screen should be inspected at least every 25 hours of use, and should be replaced as soon as corrosion and a resultant increase or decrease (clogging) in opening size is noted.
 - h. Replacement screen should be carried by saw crews.
 - i. Portable powersaws will be deemed to be in compliance with the standards if they are certified by the US Department of Agriculture, Forest Service, San Dimas Equipment Development Center.

The Equipment Development Center, USDA Forest Service, 444 East Bonita Avenue, San Dimas, California 91773, performs spark arrester qualification tests in accordance with the following standards and practices.

(1) General purpose spark arresters are tested against USDA Forest Service standard 5100-la or the latest

revision of Society of Automobile Engineers (SAE) recommended practices SAE J350.

- (2) Multiposition small spark arresters are tested against the Society of Automotive Engineers recommended practice SAE J355b or the Northwest Forest Fire Council's Chainsaw Exhaust System Standard.
- (3) Locomotive type spark arresters are currently tested against the latest revision of the Association of American Railroads (ARR) recommended practice for testing locomotive spark arresters. Upon publication of revised Society of Automotive Engineers recommended practice SAE J 342, that document may also become an acceptable test standard.

A current list of spark arresters is maintain in the Spark Arrester Guide.

- 53.27 Motorcycles, Tote-Gotes, Trailbikes, Dune Buggies, and Similar Passenger Carrying Vehicles. All vehicles except those specifically exempted (motor trucks, truck tractors, buses and passenger vehicles) must comply with the spark arrester requirement.
- 53.28 Off-Road Vehicles (Definition). Executive Order 1164 defines an off-road vehicle as "any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland or other natural terrain, except that such term excludes 1) a registered motor boat 2) military, fire, emergency or law enforcement vehicle when used for emergency purposes and 3) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license or contract."

53.3 - Inspection Precedures - Clearance and Tools.

- 53.31 Application. Clearing away of all flammable vegetation and having specified fire tools present is a requirement of law, but only for the mechanical equipment specified in the laws.
- 53.32 Fire Risk. Mechanical equipment not covered by law often constitutes fire risks which should be brought to the owner/operator's attention. An example is an equipment service rig, semi-permanently parked in one servicing area. There are no requirements by law; however, the rig should have at least ten feet clearance of flammable vegetation (around the entire rig) to be fire safe during operations.

53.33 - Varied Requirements.

1. Be familiar with the statutes, as tool requirements vary with the type of equipment and the activity in which it is being used. An example is a pickup used around a sawmill which would require it to be equipped with a shovel. If this pickup was sent to a logging operation, it would require a shovel and an ax.

2. Shovels and axes should be checked to see if they are in serviceable condition.

53.34 - Extinguisher Requirements.

- 1. <u>USFS Health and Safety Code</u>. Every person is guilty of a misdemeanor who harvests grain or causes it to be harvested by means of a combined harvester, header or stationary threshing machine, or who bales hay by means of a hay press or harvests by means of a mechanical harvester other agricultural crops which are flammable at the time of harvest, unless he keeps at all times in a convenient place upon each machine or press, one backpack or pumptype water extinguisher of not less than four gallon capacity fully equipped, filled with water and ready for immediate use. Extinguishers must:
 - a. Be full of water.
 - b. Have no leaks or weak spots.
 - c. Have hose in good condition.
 - d. Work with little "prime" pumping.
- 2. Approved fire extinguisher lists are available.
- 53.35 Combination Tool and Clearing Requirements. (See California PRC sections 4427,4428, 4429, 4431.)
- 53.36 <u>Time Requirements</u>. The time allowed to correct violations of spark arrester, fire fighting tools and clearance requirement will depend on the situation.

At times, the requirements must be met before any further operations take place. In these cases, it will be necessary to explain to the operator that he will be in violation of the law if the equipment is operated.

Circumstances, hazard and risk involved, the time of year and the specific location of the equipment may allow the inspector to extend time for some requirements.

- 53.37 Followup Inspections. Followup inspections for fire prevention law violations must be made within a definite period after the initial inspection.
 - 1. Operating Violations. When equipment operation is halted until corrections are made, the followup inspection may be made on the day or perhaps the following day (if owner or operator has continued the use of the equipment, further action may be necessary.)

If circumstances allow a longer period of time to elapse, followup

inspection should be made on a date set at the time of the initial inspection.

- 2. <u>Timing of Followup</u>. Followup inspections should take into consideration: 1) hazards of surrounding fuels; 2) the risk of the equipment. Also make followup inspections on equipment where no fire law violations were noted at the time of the initial inspection.
- 53.38 Fire Safe Practice. The manner in which equipment is operated can lead to the ignition of a wildland fire.

Be alert and take the appropriate steps to make the operation fire safe.

1. Operations Not Fire Safe. Some examples of operations which are not fire safe are: 1) welding done on a trestle or bridge where hot material falls into flammable vegetation; 2) track-laying tractors working in a rocky area causing sparks.

Fire safe practices for these two examples could be: 1) assign a fire watchman or clear vegetation; 2) reroute the tractors or construct a firebreak around operations.

2. <u>Maintenance</u>. Mechanical equipment with proper maintenance and in good condition is less likely to start fires.

Fire Prevention Specialists, when encountering poorly maintained equipment, should make proper recommendations to the owner/operator. If possible, a written memo should be made of the recommendations and retained.

- a. Lack of adequate maintenance of engines, poor lubrication practices and accumulation of flammables on equipment are the three greatest factors leading to equipment-caused fires. When a fire does occur because of one of these factors, immediately direct the owner/operator's attention to the fact, especially if similar equipment is present on the same job.
 - b. Some examples of the above are: 1) faulty injectors on diesel engines (can be recognized by engine running rough) sometimes causing plastic carbon particles to be emitted from the exhaust despite turbo-chargers or spark arresters; 2) belly pans of dozers (working in brush) filled with bits of brush, leaves, etc.; 3) chaff and leaves accumulating on exhaust manifolds; and 4) bearings not lubricated so the heat buildup causes them to literally fly apart and scatter hot metal into flammable vegetation.
- 3. Equipment Design. From a fire prevention standpoint, some equipment is prone to start fires because of poor design. Some examples are: engines with water drain holes (approximately 1/8 inches in

- diameter) in the exhaust manifold, sealed bearings which do not receive lubrication from the owner/operator and are not the correct size or type, lubrication points where the equipment design is such that they are hidden or almost impossible to reach and, therefore, skipped.
- 4. Owner/Operator Liability. Owner/operators may incur liability for negligent operation or maintenance of equipment starting fires.
- 54 FOREST AND INDUSTRIAL OPERATIONS. Each year a number of wildfires are caused by activities of forest and industrial operations. Because of these fires, it is necessary for the agencies to inspect these activities under a planned program to obtain compliance with fire prevention laws and contract stipulations. It also gives agency personnel the opportunity to advise property owners or managers of their responsibility regarding use of fire and fire-causing agents.
- 54.1 Forest and Industrial Operations Defined. Forest and industrial operations include, but are not limited to, the following:
 - 1. Sawmills. Operating, idle or hazardous abandoned sites.
 - 2. Other Woodworking Mills. Operating, idle or hazardous abandoned sites.
 - 3. Operating Areas. Woods operations, including the harvesting of forest products.
 - 4. Agriculture Industry. Packing sheds, warehouses, processing plants and wineries.
 - 5. <u>Mineral Industry</u>. Mines, oil fields and refineries, quarries, sand and gravel plants or similar industrial plants.
 - 6. Other Industry. Such as defense plants, missile bases, fuel storage plants or fuel wood cutting operations.
- 54.2 Constraints Governing Wildlands and Industrial Operations. The forest and fire laws governing wildlands and industrial operations are many and varied; make every attempt to be acquainted with them. Have a copy of the laws with you during inspections. A copy of applicable contracts, permits, etc., should also be carried as they frequently contain requirements beyond the minimum legal standards.
- 54.3 Analysis and Planning. Industrial operations should be treated in each unit fire prevention plan.
- 54.4 <u>Inspection Timetable</u>. Poorly timed, or hit-and-miss inspections can have an adverse effect. For example, making an inspection of a logging operation and checking spark arresters when the bulldozers are bogged down in the spring mud doesn't buy much fire prevention or respect for the agency.

Making any appointment for an inspection, then not keeping it and failing to notify the owner or operator can also weaken the effectiveness of the program.

54.5 - <u>Inspection Procedure</u>. When inspecting forest or industiral operations, as well as any other area, the specialist should have the necessary tools, be properly dressed and be courteous and tactful at all times.

Upon arrival, first contact the owner or manager and the agency contracting officer's representative (COR) and explain the purpose of your visit. You should ask the owner/operator and COR to accompany you during the inspection.

It might be well during this initial meeting to inquire about various activities of the operation to better understand what specific hazards might be encountered.

Be especially alert in checking the following items so that they may be correctly recorded on the Inspection Report.

1. Sawmills and Other Mills.

- a. Method of flammable waste disposal.
- b. Valid burning permit, if required.
- c. Spark arresters on all equipment which requires them.
- d. Shovel or extinguisher with chainsaw.
- e. Adequate pump and hose if steam engine is being used.
- f. Proper box and fire tools.
- g. Proper tools and clearance at area where welding, cutting or grinding is being done.
- h. Tractors and trucks equipped with proper fire tools.
- i. Proper clearance around structures.

2. Operating Areas.

- a. Proper tool box and fire tools.
- b. Spark arresters on all equipment requiring them.
- c. Tractors, trucks and other vehicles equipped with proper tools.

- d. Shovel or extinguisher with chainsaw.
- e. Valid permit for burning or blasting.
- f. Warming fires: written permission from property owner, proper clearance.
- g. Proper tools and clearance at area where welding, cutting or grinding is being done.
- h. Clearance and backpack pump at tail blocks.
- i. Proper clearance around moving cables.
- j. Proper GPM and pump pressure on fire equipment.
- k. Adequate pressure gauge on pump discharge.
- 1. Minimum fire hose length and fitting specifications.

3. Agricultural Industry.

- a. Spark arresters on all equipment requiring them.
- b. Tractors, trucks and other vehicles equipped with proper fire tools.
- c. Proper tool cache if a resident camp is maintained.
- d. Proper clearance around structures.
- e. Proper tools and clearance at area where welding, cutting or grinding is being done.

4. Mineral Industry.

- a. Spark arresters on all equipment requiring them.
- b. Tractors, trucks and other vehicles equipped with proper fire tools.
- c. Valid burning or blasting permits.
- d. Proper tools and clearance at area where welding, cutting or grinding is being done.
- e. Proper tool cache if a resident camp is maintained.
- f. Proper clearance around structures.

- g. Proper tools and clearance at area where welding, cutting of grinding is being done.
- 54.6 After Inspection Procedure. At this time all violations noted should be discussed with the owner or manager. He should be advised on how he can best bring his operation into compliance, and a reasonable time should be allowed for correction of the violations.

Often the specialist will note hazards which are not specifically covered by law such as fuel storage area, piled lumber or the like. These hazards should be brought to the attention of the owner or manager and suggestions offered on how to abate them.

The specialist may at times note certain violations on which he feels it necessary to take legal action. If and when such action is taken, it shall be in strict accordance with the instructions contained in the agency's Law Enforcement Field Guide or the Timber Sale Contract.

A copy of the inspection report should be given to the owner/operator or contractor for his records.

55 - CONSTRUCTION OPERATIONS. Hazards are created and risks are increased during the course of various construction projects conducted in the wildland area.

This chapter is designed to provide a guide to fire prevention specialists for treatment of various hazards and risks involved or associated with construction projects.

- 55.1 <u>Construction Projects</u>. Generally, all construction projects are divided into phases of 1) planning and engineering and 2) physical construction.
 - 1. Planning and Engineering. Planning and engineering consists of gathering and selection of data and preparation of plans. This is the best time for including fire prevention measures. Inclusion of fire prevention work, tools and manpower in project specifications is the ideal procedure. These specifications must be very exacting as they are sometimes quite costly to the project.

Be alert to the happenings in the area when any large or complex construction project is anticipated or under construction. This will afford an opportunity to determine whether fire prevention should be accomplished through the use of separate agreements and plans or special provisions in contracts.

Of primary concern is the start of field work. The first contact is beneficial for getting information on what is planned. It is the basic contact for discussing fire safe conduct. 2. Physical Construction. The project could be anything from a simple structure to a complex water or highway project.

The job is the construction of a specific item. A large subdivision project consists of various jobs such as constructing roads, water lines, electrical utilities, land leveling and eventually home building. Each of these is a construction job in itself and they are generally performed by different people or subcontractors.

- 55.2 Special Inspection Requirements. Before inspections are made on projects, every effort should be made to meet with the person responsible for the project. It is recommended that any large or complex project be discussed with the COR prior to first inspections.
 - 1. Preinspection Information. The aim of this first meeting by the fire prevention specialist is to:
 - a. Determine who is in charge of the overall project, obtain correct names and addresses of all persons in charge of segments with whom he should deal.
 - b. Determine the nature, scope and duration of the project, and to educate himself about what is happening.
 - c. To discuss objectives and goals of the contract with the contractor.
 - (1) What is expected of him under state fire laws.
 - (2) What are the consequences of fires and what is his responsibility to prevent them.
 - (3) That assistance is available to him to aid in meeting his responsibility.
 - d. To learn the best time to make future inspections.

2. Inspection.

- a. It is recommended that a minimum of three inspections of each construction project be made.
 - (1) The first inspection should be made at the first sign of project work to acquaint the owner/operator with requirements of fire prevention laws and recommended fire prevention measures.
 - (2) The time of the second inspection and the third inspection will depend on the time of year, condition

of flammable fuel, severity of fire weather and number and type of violations and unsafe operating practices.

- (3) Further inspections will be made until the area is in a fire safe condition.
- (4) These inspections should be made in company with the owner/operator or his representative and the agency contracting officer's representative (COR).
- b. A Report of Inspection must be made out for each inspection, and a copy left with a responsible representative of the area or operation inspected.

55.3 - Hazards and Risks.

1. Fuel Hazard.

a. Roads.

- (1) Where possible, firebreaks should parallel both sides of the rights-of-way and should be a minimum of ten feet in width. Consider disking or motor patrol equipment instead of dozers.
- (2) Fireproof the areas by removal of all flammable material in the area. Consider use of herbicide to reduce annual grass.
- (3) Some fire fighting tools are required by law for various activities; however, management should be encouraged to store fire fighting tools at other strategic locations.

b. Utility Lines.

- (1) Fireproof the activity areas by removal of flammable fuel for a minimum distance of 10 feet.
- (2) A ten foot minimum firebreak should be constructed around job areas.
- (3) Encourage the placement of fire fighting tools at job sites.

c. Building Construction.

- (1) Fireproof the job site a minimum of 30 feet.
- (2) Encourage the placement of fire fighting tools at the building site.

d. Earth Work.

- (1) An assessment of the job in relation to surrounding hazards will indicate to the inspector the best approach to the use of firebreaks or fuel removal recommendations. Consider:
 - (a) Flammable vegetation removed prior to earth moving.
 - (b) Exposure of standing vegetation to location of working equipment.
- (2) Encourage fire fighting tools at the site. Some tools are required by state law.

2. Structures.

- a. This includes office buildings, equipment sheds, chemical toilets, trailer houses or any building under construction.
- b. Inspections of structures should be made in conformance with 52.4, Inspection Procedures of this Guide.
- c. Spark producing tools, plumbers' lead melting pots, roofers' tar pots and many other items of equipment which can cause fire are of concern. The use of many of these tools is regulated by state law.

3. Fuel Storage.

- a. 30-foot clearance around structures.
- b. Flammable fuel should not be stored or transported in glass or plastic containers.
- c. Encourage good housekeeping practices about fuel storage facilities.
- d. "No Smoking" signs should be posted.
 - e. Check on quantity of fuel tanks. A retention barrier may be required to contain fuel from ruptured tanks.

4. Equipment Service Area.

- a. All flammable material should be removed from the equipment servicing area. A minimum of 10 feet clearance should be maintained around each piece of equipment.
- b. Operation of certain equipment used in the servicing area (welders, portable pumps) is regulated by state fire laws.

- c. Disposal of discarded oil and fuel filters, oil rags etc., should be considered.
- d. No smoking near mechanical equipment while it is being fueled is a standard fire safety recommendation.
- e. Recommend that a fire extinguisher be located at the servicing area.
- 5. <u>Mechanical Equipment</u>. All mechanical equipment on a project should be inspected in conformance with guidelines set forth in this guide.
- 6. <u>Burning</u>. You will find that burning operations are conducted on most construction projects. These operations will range from large project type burns to small warming fires requiring only written permission from the agency person in charge of the property. Be guided by requirements contained in state fire laws and Federal regulations.
- 7. Explosives. Many construction projects will be transporting, storing or using explosives in their project work. Inspections and permit issuance concerning explosives should be conducted. Coordinate explosives use and storage compliance requirements with the county sheriff.

8. Personnel.

- a. Smoking should be confined to cleared or designated areas.
- b. See that fire rules and regulations are known by all employees on the project through individual contacts or COR direction.

9. Project Rubbish Dump.

- a. All project rubbish dumps should be inspected in accordance with guidelines in section 58 of this Guide.
- b. Assist the builder in managing the project rubbish dump, not only to meet legal requirements, but to prevent any wildfires from starting from it. Scavengers will be drawn to this area. This creates an additional risk for the fire prevention specialist and contractor to deal with.

55.4 - Presuppression Plans.

1. Project Fire Plans.

a. The fire plan should be a written document listing names and telephone numbers, day and night for all assigned agency personnel.

- b. It should outline an aggressive plan for control of all fires within and adjacent to the project and designate those persons responsible for initiating and supervising action.
- c. The plan should include the manner in which fires are to be reported.
- d. All key fire plan employees on the project should have a copy of the fire plan. A copy should be posted at the project office and job office locations. A copy should also be made available to the agency dispatcher.
- e. Generally, on large construction projects, safety meetings are regularly held by employers; these meetings may provide opportunities for expressing fire prevention precautions.
- 2. Access. Provisions should be made to provide access throughout the project for fire protection purposes.
- 56 RECREATION AREAS. The increasing use of wildlands for recreation is creating fire problems which must be met by a well-directed and aggressive fire prevention program.

56.1 - Campfire Permits.

1. Requirements.

a. Forest Service Campfire Permits are required on National Forests by the Regional Forester (under FS Regulations, 36 CFR, sec. 261.2 and State law, section 4433 of the California Public Resources Code) except in National Forest camp and picnic grounds, within a house trailer or while using a camper.

National Forest camp or picnic grounds mean all improved camping and picnicing sites that are signed "National Forest Campground" or "National Forest Picnic Ground." Forest planning and maintenance guides shall specify minimum hazard reduction and fire safety requirements for all camp and picnic grounds where campfires are allowed without a permit.

- b. On private lands, the state law referred to in "a" above requires that any person who lights, maintains or uses a campfire on the lands of another must have written permission from the owner, lessee or agent.
- c. The California Department of Forestry, the Bureau of Land Management and the Forest Service require Campfire Permits for campfires within the area of their jurisdiction. Forest Service permits are required during the established period of high hazard or fire danger. In lieu of individual agency campfire permits, it has been mutually agreed that one permit form would

be used. The permit is called the "California Campfire Permit," form R-5 5100-54 (Rev. 5/71). Exceptions to the use of the California Campfire Permit are:

- (1) On the Angeles, Cleveland, Los Padres and San Bernardino National Forests, a Southern California Special Campfire Permit (R-5 5100-54a) is the only permit (issued on a trip basis) accepted on those Forests.
- (2) The Wilderness Permit (R-5 2300-32) shall serve as a campfire permit on all National Forests but only for the specified period and trip issued.
- (3) In the Lake Tahoe Basin Management Unit, a special permit may be issued for National Forest lands within the State of Nevada.
- d. All Campfire Permits, except Wilderness Permits, shall require at least one shovel per party. The shovel blade and handle must be sturdy enough to clear an area around a campfire location and to mix dirt and stir hot coals so as to completely extinguish fires. Minimum acceptable blade size shall be 5 inches wide and 7 inches long; the handle shall be no less than 12 inches long. Any folding type or light weight shovel which meets the above requirements is acceptable. Except for backpackers, shovels larger than the minimum size shall be recommended with emphasis on their utility to the camper.
- 2. <u>Authorized Issuing Officers</u>. Authority to issue the California Campfire Permit is limited to employees of the California Department of Forestry, Bureau of Land Management and Forest Service.

Authorization will not be given to "nonfire" governmental agencies, automobile clubs or local merchants. All authorized persons may issue the California Campfire Permit for use on Public Domain, State protected land and any National Forest other than the Angeles, Cleveland, Los Padres and San Bernardino National Forests, or National Forests outside of California which require a special permit.

The Southern California Special Campfire Permit or other fire permits will only be issued by authorized personnel of the National Forest on which the use of fire is planned.

- 56.2 <u>Inspections</u>. A planned inspection program will be established for all public and private recreation facilities.
- 1. <u>Number of Inspections</u>. A minimum of three inspections of each recreation area should be made annually.

- a. The first inspection should be made during the early spring. The prime purpose of this contact will be to acquaint the owner/operator with recommended fire prevention measures.
- b. The second inspection should be made early in the fire season to assure compliance with the initial inspection results has been accomplished.
- c. The third inspection should be made prior to midfire season.
- d. Further inspections will be made until the area is in a fire safe condition or court action for compliance is obtained.
- e. These inspections should be made in company with the person responsible for the recreation area.
- 2. Report of Inspection. A Report of Inspection must be made out for each inspection, and a notification of all hazards will be submitted to personnel responsible for the recreation program.
- 3. <u>Violations</u>. Handle violations of fire prevention laws in accordance with instructions set forth in the Law Enforcement Guide and agency policy.
- 56.3 <u>Hazards</u> and <u>Risks</u>. The specialist will find that certain fire hazards and risks are common to all recreation areas to one extent or another. There are not specific fire laws that pertain to most of these activities. Common recreational fire risks and hazards are:

1. Fires and Fire Devices.

- a. <u>Camp stoves</u>. All camp stoves used in a recreational area should be checked to determine that they are maintained and used in a fire safe condition. Consider:
 - (1) In no case should clearance of flammable material be less than five feet from the edge of the stove.
 - (2) Check overhead clearances.
 - (3) The stove should be in good condition with no holes in the fire box.
- (4) If the stove has a chimney, there should be a screen, with holes no larger than 1/4", over the outlet.
- (5) It is a common practice for campers to leave hot coals in a stove upon departing, so inspect with this thought in mind, and recommendations for proper doors should be made.

- b. <u>Campfires.</u> This type of fire is the most hazardous and should receive high priority. Consider:
 - (1) The exact clearance will depend on the circumstances at the scene. In no case should this clearance be less than 10 feet from the edge of the fire.
 - (2) Overhead clearance is most important because of rising heat and sparks. There should be overhead clearance of at least 20 feet.
 - (3) Where permitted, circles of rocks should be built and maintained to encourage campers to build their fires in safe location.
 - (4) The size of the fire pit should allow only a small fire.
 - (5) This type of campfire must not be left unattended. It can escape.
- c. <u>Barbeque Devices</u>. Barbeque devices are considered the same as campfires.
 - (1) The exact clearance will depend on the circumstances at the scene. In no case should the clearance be less than 10 feet.
 - (2) Overhead clearance is not too critical when charcoal is being used in the barbeque device. However, if wood is being used to form coals for the barbeque, then there should be at least 20 feet overhead clearance.
 - (3) The disposal of coals before they are completely extinguished is a serious problem. Persons using barbeque devices should be warned to be absolutely sure the coals are extinguished before they are dumped out of the barbeque device.
- d. <u>Large Bonfires in Fire Circles</u>. Special precautions are necessary because of the fire size.
 - (1) Flammable material should be removed for a sufficient distance to make the fire safe. In no case should the clearance be less than 30 feet from the edge of the fire.
 - (2) It is necessary that this type fire be located in an open area, and there should be no overhanging material.
 - (3) The ground around the fire area should be free of obstructions to eliminate the possibility of a person tripping and falling into the fire.
 - (4) Recommend construction and maintenance of a circle of rocks around the fire area to confine the fire to a definite location.

2. Campsites.

- a. The campsite should be cleared of flammable material. The amount of clearing will depend on the size of the camp. It will normally be the area receiving the most use.
- b. Dead and dying limbs should be removed from trees and brush for a height of 10 feet from the ground.
- c. Areas used for camping overflow during periods of maximum use should meet all of the above requirements or be posted prohibiting campfires of any type.
- d. Encourage location of new campsites in areas that are protected or partially protected from the wind.
- 3. <u>Camp Parking Area.</u> Definite parking areas for each campsite should be developed. Campers should be required to park in these areas.
 - a. Dry grass or other flammable vegetation should be removed or cut to such a level that it cannot come into contact with the exhaust systems of vehicles parked in the area.
 - b. Access should be so located that vehicles will not have to maneuver in such a manner that exhaust systems will come into contact with flammable material.
- 4. <u>Perimeter Firebreaks</u>. Encourage the construction of perimeter firebreaks. It might be more practical to construct a firebreak around groups of campsites or around the entire facility.
 - a. The firebreak should be cleared of all flammable material to a minimum width of 10 feet.
 - b. A 25 foot wide fuelbreak, containing a 5 foot firebreak, may be recommended instead of the 10 foot firebreak.
- 5. Access Roads. Access roads and all roads within the recreation area should be fireproofed. See "Fire Hazard Reduction Guide for Roadside."

Encourage maintenance of two access roads for the recreation area.

A road around the perimeter of a recreation area serves as fuel or firebreak.

- 6. <u>Refuse Disposal</u>. The specialist should know the legal requirements and other fire prevention measures pertaining to dumps.
- 7. Mechanical Equipment. Most recreational areas have light plants, pump motors, bulldozers or chain saws which should be checked.

- 8. <u>Safety Islands</u>. If the campground is located in a hazardous area or its access roads are limited, encourage establishment of safety islands, depending on the size and type of campground.
- 56.4 Special Problem Areas. You will find certain problems that are unique to the specific recreation facility. These are discussed below:
 - 1. <u>Unimproved Campgrounds.</u> These are usually areas used for camping purposes for many years and have become regular camping areas.

The Fire prevention specialist will be guided in his handling of these areas by the local agency policy.

If they are not to be allowed, then the specialist should follow the procedures as set forth in the Law Enforcement Guide regarding the handling of illegal camping.

If these types of campground are to be allowed, the specialist should consider the following:

- a. Check for possession and compliance of proper camping and campfire permits.
- b. Allow campfires only in safe location.
- c. 10 feet of clearance around the campfire should be the bare minimum. In most cases, require more clearance because of the lack of supervision of the areas.
- d. Always obtain the name and address of a responsible person at the location.

NOTE: License numbers of cars parked at the location. This will tend to make the campers more fire prevention conscious.

- e. Plans should be made for intensive fire prevention patrols during times of high use or high fire hazard when restrictions on campfires may be in effect.
- 2. Water Recreation Areas. There are several special problems here.
 - a. Of prime importance is the establishment of sufficient parking area to handle all the vehicles and boat trailers. Well-defined parking areas should be cleared of all flammable fuel and posted.
 - b. All motor boat fuel storage should have a 30 foot clearance of flammable materials.
 - (1) "No Smoking" signs should be posted around all fuel storage and dispensing areas.
 - (2) Caution against dispensing gasoline in glass or plastic containers. Regulations or local ordinances may make it illegal.

- c. The most critical fire hazard is the establishment of picnic and camp areas along the lakeshore where the only access is by water. Patrol becomes exceedingly difficult; therefore, fire prevention measures should be far more strict. Regulations of the agency controlling the use of water recreation areas should be carefully checked as well as local governing agency ordinances or regulation prior to making the actions recommended below.
 - (1) The docking facilities should be signed advising that picnicing and camping are allowed only at established sites.
 - (2) No campfires should be allowed at the campsites. Camp stoves should be furnished instead.
 - (3) There should be a minimum 10 foot clearance around all camp stoves.
 - (4) All flammable material should be removed from the campsite area.
 - (5) Groups of campsites should be enclosed within a firebreak. Local circumstances will determine the width of a firebreak.
 - (6) The camping areas should be posted with signs requiring all campfires to be confined to camp stoves.
 - (7) The owner/operator should be encouraged to conduct periodic daily patrols of the area.
- 57 RIGHTS-OF-WAY CLEARANCE. The main concern in the treatment of rights-of-way involves roads and highways, railroads and powerlines.

More than one-half of the total rights-of-way receive treatment of some type. Only a small percent of these forest fires start on treated portions.

57.1 - Authority. Electrical utility rights-of-way are one of two covered by fire prevention laws. The law does not require clearance of the complete electrical right-of-way, but does require certain hazard reduction around specified poles, towers and conductors.

Explanation of this authority will be found in the "Hazard Reduction and Fire Prevention Measures for Powerlines Guide." (See exhibit A)

For railroad rights-of-way, see the "Railroad Right-of-Way Hazard Reduction Guide." (See exhibit B)

57.2 - <u>Hazard Reduction Guides</u>. There is, in addition to the "Hazard Reduction Guides" mentioned above, the "Fire Hazard Reduction Guide for Roadsides." (See exhibit C) Each Guide specifies certain standards. Agency employees should request additional hazard reduction measures where necessary.

- 57.3 Analysis and Planning. It would be unrealistic to completely clear all rights-of-way; therefore, it is mandatory that the problem areas be thoroughly analyzed and rights-of-way clearance be done where the greatest hazard and fire occurrence exist.
 - 1. <u>District Report.</u> Each District should compile on itself a complete report directed to the Supervisor and consisting of:
 - a. Fire occurrence on rights-of-way.
 - b. Recommendations to reduce the occurrence.
 - c. Assignment of priorities.

57.4 - <u>Inspections</u>.

- 1. Railroads, Roads and Highways. Agency personnel should inspect problem areas requiring hazard reduction along railroads, roads and highways prior to contact with the representatives of the agencies involved. Keep two points in mind:
 - a. <u>Problem Areas.</u> Inspecting personnel should not ask for treatment of a width which is more than that needed to handle a particular problem at a particular point.
 - b. Railroad Timing. Consider the time of year for hazard reduction. Often a railroad will treat the entire length of its right-of-way, but only after a large number of fires during early fire season. Spot maps showing dates of fire occurrence would help the specialist to determine areas where fires occur.

Spot maps should be prepared at the close of fire season and the inspections made no later than February so joint meetings can be arranged and recommendations made. Whenever possible, interagency meetings with the railroad should be planned.

c. <u>Followup Inspections</u>. Inspecting personnel should make followup inspections where hazard reduction work is in progress or where it has been completed.

2. Powerlines.

- a. Inspection of power poles and lines can be carried out while making other types of inspections or may be treated as a "project inspection." (See "Powerline Hazard Reduction Guide" for examples of poles and towers which need firebreak clearance.) If treated as a project inspection, it would help to have power company personnel along.
- b. Inspection procedures should follow those outlined in the Regional Forester's Policy, 5100 Manual (5113.33 Powerlines April 1975). (See exhibit D)

c. Conductor clearance can be inspected during normal travels as most of the powerlines in California parallel roads.

Special attention should be directed toward dead trees, those deteriorating or in a state of decline and trees or portions leaning toward the powerline which may contact it.

- d. Make sure you contact the correct supervisory personnel of the utility company when delivering the copy of the Individual Fire Inspection Report. A local foreman may patiently listen to the explanation but have no authority to order the necessary corrections.
- e. Followup inspections will be made on all poles, towers or conductors which need correction.

This includes poles, towers or conductors in compliance at the time of the initial inspection but had circumstances which could lead to a later violation. Example: conductors located next to trees which put on rapid growth. This should be noted on the specialist's report at the time of the initial inspection so it can be readily referred to for followup purposes.

57.5 - Meetings.

- 1. <u>Highways and Roads</u>. Hold meetings at all agency supervisory levels with right-of-way owners for the purpose of obtaining the right-of-way clearance deemed necessary. The responsibility for meeting arrangements should be that of the local District.
 - a. Fire prevention specialists should plan interagency meetings with local road foremen or maintenance engineers in late winter and early spring. Allow sufficient time for the road or highway agency to do work.
 - b. Fire prevention specialists should meet no later than May 1 with county road department heads and the district highway engineer to discuss hazard reduction plans and activities.

The fire prevention specialist should present factual information on roadside fire occurrence and effectiveness of past treatment. Recommendations on priority of locations where further efforts are needed should also be presented. Officials of the state department of highways or the county road department should be urged to make every effort to accomplish the roadside hazard reduction necessary.

2. <u>Railroads</u>. Fire prevention specialists at each administrative level should maintain close contact with railroad officials responsible for right-of-way maintenance. A meeting can be arranged to discuss the railroad's plan for reducing the fire hazard on rights-of-way at least once a year.

The agency should present factual information about railroad fires, including fire occurrence, effectiveness of past treatment, recommendations for future treatment and priorities of treatment. Establish priorities on the basis of when the fires occur and the hazard involved.

3. <u>Electrical Utilities.</u> Meetings may be arranged at any administrative level within the agency should a utility fail to comply with requirements of the California Public Resources Code.

According to section 4295 of the California Public Resources Code, a utility company may not enter into private lands to do firebreak clearing if the owner denies them permission. In areas where special hazards exist, the fire prevention specialist may wish to call upon the landowner privately or to arrange a meeting with landowner and the utility company.

57.6 - Adjacent Property Owners. In areas where special hazards exist, the fire prevention specialist may call on property owners adjoining rights-of-way to secure hazard reduction work. Explain to the land-owner that this is not a legal requirement but is for the protection of his property.

Examples: where a railroad right-of-way is very narrow or where property borders a county road and no funds exist for roadside hazard reduction.

58 - RUBBISH DUMPS.

- 58.1 On December 31, 1971, open burning of rubbish dumps was prohibited by state law. Many rubbish disposal methods now involve cut and fill operations which in some areas have been less than successful with accumulations of flammable rubbish.
- 58.2 Inspection of authorized dumps on agency lands and on private lands protected by the agency is the responsibility of the agency. Dumps located on lands within fire districts which are within agency boundaries should be inspected jointly by the fire district and the agency.
- 58.3 A permit is required. "A person shall not maintain, use or operate any rubbish dump outside of the exterior boundaries of any city unless he has a permit to do so issued by the State Forester and the rubbish dump is maintained, used or operated in strict accordance with the terms and conditions prescribed in the permit."
- 58.4 A "Rubbish Dump" means any accumulation for the purpose of disposal of any rubbish, rags, paper, boxes, crates, excelsior, petroleum products or the residue thereof, fallen timber, slash, limb wood, branches, brush, grass, leaves, litter or other combustible or flammable materials. It does not include slash from timber operations or the temporary piling of flammable material which have accumulated from clearing while the construction or operation is in progress in conjunction with public works,

utility or other industrial projects where such accumulation is located wholly within the exterior limits of such projects.

- 58.5 Minimum requirements: a rubbish dump shall not be maintained or operated without providing a clearance of flammables for a minimum distance of 150 feet from the periphery of the accumulation of the rubbish dump.
- 59 FUEL MANAGEMENT (HAZARD REDUCTION). Fuel management is the manipulation and reduction of fuels to meet forest protection and management objective while preserving and enhancing environmental quality. Fuels are defined as live and dead vegetation. These fuels occur naturally or result from management activities.

An adequate fuels program will help prevent the large fires.

- 59.1 Means of Accomplishing Fuel Modifications.
 - 1. <u>Mechanical</u>. Manpower or equipment are used to remove or rearrange fuels. This can consist of piling fuels for future burning or crushing dead fuels so they decompose faster.
 - 2. <u>Chemical</u>. This method consists of spraying or injecting chemicals to kill undesirable species. Spraying can be accomplished by hand application, by aircraft and by other machines.
 - 3. <u>Burning</u>. Burning is an economic method of disposing of accumulated slash or undesirable species. It is done by burning piles or broadcast burning. Broadcast burning requires proper planning and preparation.
 - 4. Green Belts. Green belts can be prepared and maintained between urban areas and dangerous forest fuels.
 - 5. Type Conversion. This consists of converting dangerous vegetation into other vegetation in critical areas.
 - 6. <u>Fuelbreaks</u>. Fuelbreaks are made by physically changing fuel types to break up the continuity of dangerous fuel.
 - 7. <u>Firebreaks</u>. Firebreaks are made by removing all but ground flash fuels and are designed to stop the spread of wildfire with a minimal effort by suppression crews.
 - 8. Retardant Spraying. When it is not practical or economically feasible to use other methods of fuel modification, spraying of retardant fuels can be used with low expense and little labor. This method is extremely useful along heavily used highways.
- 59.2 <u>Fuel Inventory</u>. A fuel inventory not only tells how fast and how many BTU's will be released if a fire burns through a given area, but the amount of work needed to remove or modify existing fuels in the area.

59.3 - Recreation Area Hazard Reduction.

1. Types of Recreation Areas.

- a. Organizational. Organizational recreation areas are on private land or on agency land under special use permits. On private land they must comply with applicable state laws. Those under special use permit can have additional stipulations written into the permit that requires more hazard reduction than state laws.
- b. Improved. Improved recreation areas on agency lands should comply with state fire laws and, in addition, should have a fuelbreak around the entire area. Around fire pits and stoves a 5 foot clearance should be maintained, with hazard reduction around the individual campsites.
- c. <u>Unimproved</u>. Popular unimproved areas should be cleared of flammable vegetation especially around campfire spots. Hazard reduction is very important in these areas because they are generally remote and in or adjacent to forest fuels.
- 59.4 Reduction of Manmade Hazards. Policing and general cleanup eliminates flammable refuse. This generally takes a cooperative effort with private landowners. When working with contractors, generally clean up clauses should be in the contract.

GUIDE FOR FIRE HAZARD REDUCTION ALONG POWERLINES

This Guide lists various standards that are necessary to minimize forest fires caused by the construction, operation and maintenance of electric powerlines. They are also based on Federal regulations and the laws of the State of California. These standards should be considered a minimum guide. Inspection may indicate the need for additional work.

All agency personnel who may make condition surveys and inspections of powerlines or who prescribe hazard reduction work or fire prevention measures will be thoroughly familiar with the Guide.

This Guide was developed by the Forest Service, Region 5, Bureau of Land Management, California and the California Department of Forestry to assure uniform application of hazard reduction.

State Forester California Department of Forestry

Regional Forester Forest Service

State Director Bureau of Land Management

Exhibit A

GUIDE FOR RAILROAD RIGHT-OF-WAY FIRE HAZARD REDUCTION

This Guide lists various standards designed to minimize forest fires caused by the construction, operation and maintenance of railroads. They are also based on Federal regulations and the laws of the State of California. These standards should be considered as minimum guides. Inspection may indicate the need for hazard reduction beyond these minimums. The work should be tailored to fit each area, with full consideration given to aesthetics and soil stabilization.

All agency personnel who make condition surveys and inspections of railroads or who prescribe hazard reduction work or fire prevention measures will be thoroughly familiar with the contents of the Guide.

This Guide was developed by the Forest Service, Region 5, Bureau of Land Management, California and the California Department of Forestry to assure uniform application of hazard reduction.

State Forester California Department of Forestry

Regional Forester Forest Service

State Director
Bureau of Land Management

Exhibit B

GUIDE FOR ROADSIDE FIRE HAZARD REDUCTION

This Guide lists standards necessary to minimize forest fires caused by the contruction, maintenance and use of roads and highways. These standards are to be used as an aid in formulating individual roadside hazard reduction plans. They are minimum guides. Inspection may indicate the need for hazard reduction beyond these minimums.

These guidelines should be tailored to fit each specific area, with full consideration given to roadside aesthetics and roadside stabilization.

All agency personnel who make condition surveys or who prescribe roadside hazard reduction work or fire prevention measures will be thoroughly familiar with this Guide.

This Guide was developed by the Forest Service, Region 5, Bureau of Land Management, California and the California Department of Forestry to provide uniform application of hazard reduction.

State Forester
California Department of Forestry

Regional Forester
Forest Service

State Director Bureau of Land Management

Exhibit C

- 5113.33 Powerlines. The minimum fire prevention standards for the operation of electric power transmission and distribution lines are found in Title 14 of the California Administrative Code, section 1250 and sections 4292 4296 of the California Public Resources Code and General Order No. 95 of the California Public Utilities Commission. Additional fire prevention requirements to be met on agency land may be stipulated in Federal licenses and permits. The "Hazard Reduction Guide for Powerlines," published jointly by the Forest Service, Bureau of Land Management and California Department of Forestry, provides useful information relative to the inspection of powerline.
 - 1. Authority. Power companies are responsible for the inspection and maintenance of the powerlines facilities in compliance with all applicable laws and conditions of occupany. Agency personnel will ensure that power companies meet their responsibilities of eliminating powerline fire hazards within areas under agency protection.

9. Condition Surveys of Powerlines.

a. Method. The agency will conduct powerline inspections to the degree of completeness required to assure that powerline fire hazards are eliminated by the start of each fire season. Agencies will remind companies of their responsibilities in writing not later than February 15 of each year. This notification will include a request that the power company inspect its facilities and correct all fire hazards prior to fire season, or by a specified deadline. It will also ask that power companies notify the agency when such inspection and corrections have been completed so that the agency compliance inspections may be made after the work has been done.

The annual notification called for above should be specific with respect to responsibilities. A suggested form of notification is shown in exhibit D-2.

10. Annual Inspections. When notification by the power company that it has completed its inspections and corrections, or just prior to fire season, the agency shall require inspections of the powerline facilities to the extent needed to assure adequate compliance. These may range from spot checks to complete inspections. The inspections will be made by employees who are trained and qualified to identify potential powerline fire hazards. If hazards are found, the power company will be immediately notified in writing and asked to reinspect the powerline and correct any hazards found by the agency. Notification should be sent by Certified Mail Return Receipt Requested.

The above procedures are not intended to preclude working closely with power company representatives when necessary to assure mutual understanding of standards to be met. Powerline hazard corrections are to be made by a specified date, as dictated by fire conditions. If, during

fire season, corrective action is not taken within two weeks, or sooner when specified, law enforcement action shall be taken. Failure to make the required corrections by dates stipulated should be handled as a violation of State Fire Law and appropriate action taken within the framework of the agency law enforcement policy.

Exhibit D-1

Dear Sir:

This is a reminder that we will be making fire prevention compliance inspection of your transmission and distribution lines located within this Forest (District).

To allow you time for corrective action in the event that a hazard is overlooked, we ask that you notify us when your prevention inspection and maintenance work has been completed.

We will begin making our compliance inspections on to ensure that fire prevention requirements are met. Although our compliance inspections are on a random basis, your maintenance work should be thorough and complete before our inspection. Should your personnel need any clarification of requirements, please let us know.

Sincerely,

Exhibit D-2

INTERAGENCY

FIRE PREVENTION GUIDE

CHAPTER 60 FIRE PREVENTION ADMINISTRATION

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60 - LAW ENFORCEMENT IN FIRE PREVENTION.

61 - ENFORCEMENT OF FIRE LAWS. Law enforcement, one of the many tools in fire prevention, is based on Federal laws, regulations, State fire laws and local fire ordinances.

Laws protect both the individual using wildlands and natural resources.

Agency personnel need to decide whether criminal or administrative action is warranted in each violation of law or regulation. In order that the proper action will be taken, consideration should be given to seriousness of the violation, the potential for damage and the intent of the violator.

Administrative action may be sufficient to handle many law enforcement contacts. If it can be determined that the violator was unaware of the regulation, or for some reason had not been informed, the matter may be disposed of administratively. This may consist of a written warning, a verbal warning or other action.

- 61.1 Authority. Certain agency personnel by virtue of their appointment, have authority to enforce Federal laws and regulations which apply to agency lands under their control. This authority is limited and does not authorize the enforcement of other than Federal laws. Minimum training standards are required of all employees involved in making law enforcement contacts. Only those employees who have been properly trained and authorized will be given law enforcement responsibilities. The written authorization will specifically state the extent to which the employee has enforcement responsibility. (See agency law enforcement guide)
- 61.2 Conduct. The professional approach has proven to be most effective in obtaining cooperation from the public. A few professional characteristics of fire prevention personnel are:
 - 1. Be courteous at all times, even during an emergency or incident.
 - 2. The ability to render a public service, and take the appropriate action.
 - 3. Ability to explain the reasons for laws, regulations and the fire prevention specialist's own responsibility in nonthreatening terms or language.
- 62 AGENCY LAW ENFORCEMENT GUIDES. Agency law enforcement guides spell out objectives, policies and responsibilities. All personnel assigned law enforcement should thoroughly familiarize themselves with their agency guide.

63 - APPLICABLE LAWS AND ORDINANCES.

63.1 - Federal Fire Laws. Federal fire laws exist for the purpose of preventing fires. Agency personnel have the authority to enforce these

laws and should apply them consistently to promote and effect successful fire prevention.

- 63.11 <u>Title 36 CFR 261.5</u>. These fire regulations apply to all parts of the National Forest System.
- 63.12 Acts Prohibited In Areas When Designated By Order. When a line officer authorized to issue an order determines that one or more of these regulations are needed, he may, by order, apply them to an area of agency land under his jurisdiction.
- 63.13 Acts Prohibited By Regulation Issued by Regional Forester, USFS and State Director, BLM. State Directors and Regional Foresters are authorized to issue prohibitions to meet unique or localized needs not provided for in the regulations.
- 63.2 State and Local Fire Laws. Agency personnel have no authority to enforce state law and local ordinances unless specifically authorized by the State of other political sub-division through cooperative appointment or as a private citizen. Employees enforcing State law are acting on behalf of the State or other political sub-division and not for the United States.

Each fire prevention specialist should be familiar with county and local policies. Copies of these laws and regulations should be available to all fire prevention specialists. Agency personnel holding a Voluntary Fire Warden and Peace Officer appointment under written authority from the State Forester is authorized to cite for violations of county ordinance or local policy.

- 63.3 Arrest. When training requirements have been met, certain individuals have authority to arrest. Usually there will be ample time to investigate and collect evidence to certify a charge and then obtain a warrant for the arrest of the suspect. (See law enforcement field guide for further information.)
- 63.4 State Authority. (See State and Local Fire Laws.)
- 64 FIRE INVESTIGATION. In order to develop a successful fire prevention program, an accurate method of cause determination (such as incendiary, brake shoe, escape burning, burning building) is necessary.

To obtain compensation for loss or damage suffered by the government, investigation of man-caused fires must be made at the earliest possible moment. The primary job is to obtain all the information and evidence possible in order to clearly identify the responsible party. Trespassers will be brought to account by claim for compensation if violation of law or regulation is proven.

65 - COOPERATIVE LAW ENFORCEMENT. More visitors than ever use Federal lands and the number of people enjoying these areas have created law

enforcement problems. Other factors also cause a strain on the ability of the State and local law enforcement agencies to provide adequate protection.

This led to a cooperative agreement, PL 92-82, August 10, 1971, wherein the Federal government provides reimbursement to the State or local agencies for these expenditures.

Under the agreement, local law enforcement officers will enforce the State and county laws and provide the extraordinary services requested by the Federal agency. The agency will cooperate with local law enforcement agencies by furnishing information and evidence and assisting as long as agency personnel are not subject to bodily harm or violence.

66 - SPECIAL USE PERMITS.

- 1. Permits for any type of activity on agency land are required of:
 - a. Contractors.
 - b. Industrial operations.
 - c. Other governmental agencies.
 - d. Private individuals.
- 2. Qualified agency personnel are responsible for preparing the permit with careful consideration to land use planning including impact surveys. Dependent on the hazard and risk involved, use permit may deal with such items as:
 - a. Annual cleanup.
 - b. Proper incinerator standards.
 - c. Land clearing.
 - d. Project burning.
 - e. Tar pots.
 - f. Smoking bees.
- 3. The special use permit may require the applicant have the following:
 - a. Proper clearance.
 - b. Fire protection equipment.
 - c. Spark arresters.

- d. Hand tools.
- e. Any other measures needed to minimize or eliminate the hazard or risk.
- 66.2 Fire Plans. For any activity on agency land which creates a hazard or risk, a fire plan is required which covers all necessary precautionary measures. The plan will be the responsibility of the District Ranger or Area Manager and discussed with the contractor or permittee. The District Manager or the Forest Supervisor will coordinate between Ranger Districts or areas and approve the fire plans and contracts.

A fire plan is required for, but not limited to, the following:

- 1. Rights-of-way operations.
- 2. Timber sale projects.
- 3. Construction projects.
- 4. Service contracts where the agency contracts for a specific job and a contractor does the work.
- 5. Any use or activity that creates hazard or risk on agency land.
- 6. Agency project burning.

66.3 - Types of Contract Fire Plans.

- 1. <u>Simple.</u> One page listing requirements satisfied with some extra effort in the normal course of operations by the user or contractor. Examples are:
 - a. Special use residence permit.
 - b. Access road right-of-way.
 - c. One man wood cutter.
 - d. Free use permits.
- 2. <u>Complex.</u> A fire plan written for a major construction project or an especially hazardous operation.
 - a. Usually this involves extended duration of time, large amounts of manpower and/or equipment spread over a wide area such as:
 - (1) Utility projects.

- (2) Highway construction.
- (3) Large mining operations.
- (4) Oil or petroleum leases.
- (5) Timber sale activities.
- b. The fire plan will usually include provisions for:
 - (1) Fire Chief.
 - (2) Project FPT's.
 - (3) Shutdown.
 - (4) Tools and equipment.
 - (5) Emergency measures based on daily fire danger rating.
 - (6) Fire suppression responsibilities.
- 3. How the Contract Plan Works. The fire plan is made part of the special use permit, license or contract. The permittee is aware of the plan and conditions prior to purchase, lease or bid. The plan is binding until expiration or mutual written agreement alters it. Failure on the part of the permittee or contractor to comply with the terms can be grounds for revocation of the permitted use or breach of contract.
- 4. Responsibilities of Contractor or Permittee.
 - a. Full implementation of terms of permitted use or plan.
 - b. Compliance at all times.
 - c. Designate Fire Chief.
 - d. Project fire guard or FPT's.
 - e. Supplying and maintaining required items.
- 5. Responsibilities of the Agency.
 - a. Inspections for compliance.
 - b. Enforcement of fire requirements.
- 67 CLOSURES AND RESTRICTIONS.
- 67.1 Restricted Use. Use restrictions can prevent wildfires. They should be used only when necessary and should be removed when condi-

tions permit. Under authority, the Forest Supervisor or District Manager can restrict certain forms of fire use. It will be used only when needed.

1. Criteria For Effective Implementation.

- a. Identification of a problem.
- b. Types of restrictions needed.
- c. Public support.
- d. Areas and periods of restrictive use defined.
- e. Plans and personnel needs to enforce restricted use.
- f. Removal of restrictions as soon as possible.
- g. Public notice in advance of beginning and ending.

2. Use Restriction Plan Should Include:

- a. Kinds of restrictions needed, reasons for and periods to be in effect all documented.
- b. Base maps showing boundaries of area:
 - (1) except roads, campgrounds, etc.
 - (2) points where permits/registration is required or available.
- c. Complete areas description including exceptions.
- d. Plans for effecting the restrictions including public notification, posting, permit issuance, registration, correlation with other areas and enforcement.
- e. Cooperators State, others.
- f. Postponement of hunting season.
- g. Closing of industrial operations.
- h. Copy of order.
- 3. Enforcement. Data needed to support restriction violations should contain, in addition to other factual data:
 - a. Status of land.

- b. Cite regulation violated.
- c. Copy of order.
- d. Copy of newspaper article on restriction.
- e. Evidence of date, when and where order was posted.
- 67.2 Closures. Under the authority of the Secretary of Agriculture and the Department of Interior regulations, the Forest Supervisor or District Manager may close all or part of an agency's land to public entry when extreme fire potential exists.

Complete closure should not be initiated if less restrictive measures will suffice.

Closure may be enforced when the fire burning indexes become extreme and are expected to continue. Other conditions which effect area closures are as follows:

- 1. Fire suppression capability reduced due to commitment of suppression forces.
- 2. Red flag weather warning winds over 25 mph, major adverse fire weather change.
- 3. Other exceptional public safety hazard, multiple fires affecting the agency ability to respond.

Closure is intended as a <u>last-resort</u> effort to prevent wildfires during periods of extreme fire danger.

In addition to the above, annual fire restrictions are published in Regional Foresters Order No. 77-2. Have copies of all applicable orders. The fire season is normally May 15 through October 31, but the season may be extended.

68 - ARSON - INCENDIARY. Incendiary fires include job fires, grudge fires and pyromania. Of these three, pyromania is the leading cause. The motive of the pyromaniac is extremely complex. He will usually ignite fuels where the result is the rapid spread of fire. The fact that pyromaniacs are mingled with the large annual influx of recreationists make detection difficult, if not impossible.

Due to the lack of knowledge in dealing with incendiarism, very little progress has been made toward preventing incendiary fires. To reduce the frequency rate, a planned patrol of fire occurrence areas is needed. These areas need to be covered on high plan days and on weekends of high use. Press, radio, and television news releases should be used to publicize information connected with incendiarism.

69 - REWARDS IN CONNECTION WITH FIRE PROSECUTION.

- 1. Authority exists for a payment of rewards in connection with fire prosecution.
- 2. Procedures for payment are:
 - a. Application sent to Regional Forester or State Director for reward.
 - b. Person must present satisfactory evidence.
 - c. Employees of USDA and USDI are barred from receiving rewards.
- 69.1 <u>Special Consideration</u>. More effective fire prevention may be gained through the use of well-planned and publicized efforts. Some items to consider are:
 - 1. Development of reward posters.
 - 2. A plan for distribution and installation of these posters.
 - 3. Use of the news media to publicize.
 - 4. Prompt and timely removal of posters.
 - 5. Followup news releases of successful prosecutions.
 - 6. Maintain anonymity of informants.

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